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Railway Age
AND RAILWAY REVIEW

FIRST HALF OF 1928—No. 16 April 21, 1928 SEVENTY-THIRD YEAR

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Delaware & Hudson Retaining wall at Scranton, Pa. This photograph has not been retouched.

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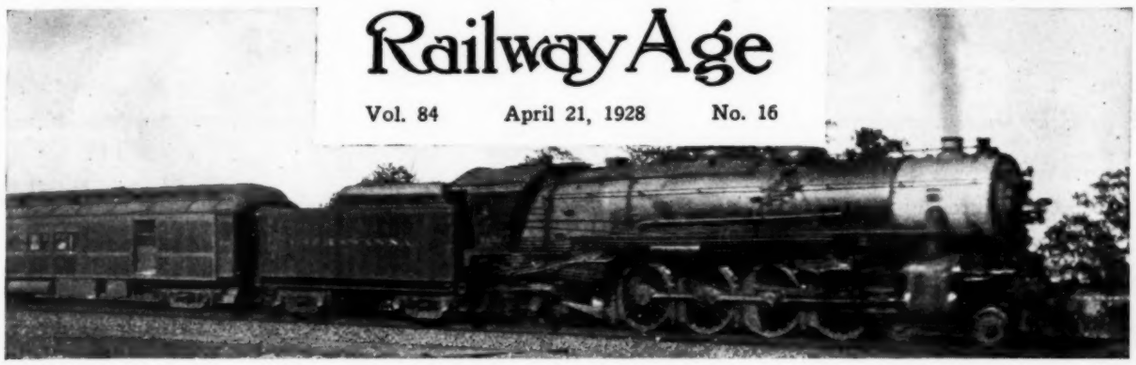

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Railway Age

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An Organization Chart of the I. C. C.

OPPOSITE page 918 of this issue will be found, in the form of an insert, a detailed organization chart of the Interstate Commerce Commission. This chart, in its present form, is our adaptation of one prepared by the Research Office of the National Association of Owners of Railroad and Public Utility Securities. The organization of the commission is clearly shown, together with that of the various bureaus, and the duties of each are outlined. The various officers are named and also the number of employees in each bureau. We believe that our readers will find this chart valuable, in that the information it presents is important and is shown in a form which is easily understood. As time goes on, of course, there will be changes in the personnel. Yet these will probably not be great in a considerable period. Important changes in organization should be even less frequent. The chart should, therefore, be authoritative in most essentials for quite a long period.

Huge Motor Coach Systems Are Developing

THE movement toward the consolidation of small motor coach lines into large systems, which was forecast about a year ago, is now taking place with the same rapidity which has marked the spread of highway transportation in this country. Several affiliated lines now operate from coast to coast. One company in Chicago owns or controls an extensive coach line system, which operates not only in the middle west but extends into the southeast and southwest as well. One line on the Pacific coast has coaches regularly operating over routes from Seattle on the north to San Diego on the south, and eastward to Salt Lake City, Denver, El Paso, Kansas City, and St. Louis. This last line, incidentally, controls an airplane line now in operation between San Francisco, Cal., and Seattle. A few days ago the newspapers reported the impending consolidation of more than two hundred individual motor coach lines, operating equipment with an aggregate value said to be about one hundred and fifty million dollars. Most of the really large motor coach systems have sprung up during the past year or so. What their size will be a year from now no one can tell. It appears rather likely, however, that the small motor coach operator will soon be replaced by the large operator, just as most of the small pioneering railways were replaced by large railway systems. The railways will doubtless be affected by the growth of these large motor coach systems. If the motor coach is a competitor of the railway train—and it usually is unless it is operated by a railway itself as an adjunct to its train service—the large motor coach systems with their correspondingly large resources will be proportionately stronger competitors of the railways.

Reducing Terminal Delays

AT one of the most constructive meetings of the Western Railway Club held recently, the program on Monday evening, April 16, was devoted to the consideration of railway yards and terminals with special reference to those modern improvements and facilities which reduce terminal delays. It is more clearly apparent and more generally appreciated every day that the way to get increased railway capacity and more economial operation is not only by increasing train speeds but particularly by reducing the delays to cars in freight classification yards and to locomotives at engine terminals. Among the points stressed at the meeting referred to was the fact that most railway yards and terminals are not modern and the problem or revising and rearranging existing terminals is one of the most pressing and perplexing which confronts railway managements. One speaker urged the appointment of a committee on each road to study intensively not only the best equipped modern yards and terminals but those which are older and less efficient, in order to familiarize themselves with those features in construction and design which are effective, as well as those to be avoided. An intelligent program of yard and terminal improvements can then be developed and carried on as rapidly as practicable. The necessity of knowing in detail both the cost and economies of modern equipment installations was strongly emphasized in order that the managements may know not only which facilities are most needed but also those which will yield the greatest return on the investment. The statement was also made that one of the greatest present needs is for earnings of the railways which will permit them to make justifiable improvements that they are now unable to finance.

Faster Passenger Schedules

ONE of the criticisms most frequently directed against the American railways is that they are not providing as fast schedules for passenger service as they should. In support of this comment, comparison is frequently made with European roads to our disadvantage. Disregarding the inaccuracy of most of these comparisons, however, how many of these critics realize the improvement in passenger schedules that is constantly occurring in this country? As an indication of the trend in this direction, within the last ten days the Pennsylvania and the New York Central have announced reductions of one hour in the schedules of two important trains between New York and Chicago.

During the current week announcements have been made of the shortening of the schedules of trains between Chicago and the north Pacific coast. In its announcement of this reduction of running time, the Great Northen has called attention to the fact that the time now required to travel from Chicago to Seattle is the same as that required on its fastest train between St. Paul and Seattle in 1895. In other words passenger train schedules in the Northwest have been so shortened that the cities in the Central West and the Northwest have been brought closer together, in point of time, by a distance equal to the more than 400 miles between Chicago and St. Paul. This saving in time has not come about all at once, but rather by degrees. It has been due to the improvement of the tracks and structures, to the provision of better cars and more powerful locomotives, to the installation of signals and to all of those other facilities which go to make up a modern railway. The reductions in time between Chicago and New York and between Chicago and the north Pacific coast are indicative of the trend throughout the entire country, and are reflections of the constantly improved service that is being afforded the American public by its railways.

Better Freight Stations

ARCHITECTURE, as it has found expression in American railway buildings, has been largely a reflection of current practice as applied to buildings in general. However, there is good reason to believe that railway buildings erected in recent years compare more favorably with contemporaneous structures devoted to other purposes than at any previous time.

One field in which marked progress has been made in recent years is that of railroad freight stations. This is in conformity with the trend of the times toward greater attention to attractive appearance in buildings devoted to industrial and commercial purposes outside of the so-called downtown or retail districts. It is the result of a growing appreciation of the value of good appearance in structures devoted to strictly utilitarian uses, and of the fact that the attainment of symmetry and good taste does not necessarily increase the cost of the building. Improvement in appearance has not been restricted to the architectural treatment of exteriors. Attention is being given to the improvements of interiors, not only in rooms frequented by patrons of the railroads but also in the offices occupied by the clerical forces. Offices are now being designed with a regard for lighting, ventilation, cleanliness, sanitation and general attractiveness that was unthought of a generation ago.

However, improvements have not stopped there, for one of the greatest advances has been in the adoption of types of construction that insure long life, low maintenance costs and low fire insurance rates. It is not enough that the building be of substantial construction and of a type making for minimum fire hazards. The floors, walls, roofs, windows and doors must be constructed of materials that will last. Experience has shown that there is no economy in cheap plumbing and hardware. Architectural treatment is a prime factor in determining the impression which the building creates on the day that it is finished, but the nature of the materials of which it is constructed have much to do with the appearance it will present a generation hence.

Car-Retarder Progress Rapid

THE car-retarder system for classification yards, which was developed and first installed on the Indiana Harbor Belt in 1924, has since been installed in 14 other yards in various parts of the country and is rapidly establishing itself as an economical facility for modern yards. Much has been learned about retarders in the last three years. Yard layouts have been improved by grouping tracks and using lap switches, thus securing quicker separation of cars. This not only results in faster classification, but permits the use of fewer retarders, which extends the usefulness of the system to an increased number of yards. The problem of proper grades to use has also received attention with gratifying results in reduced damages to cars and lading.

Besides decreasing the cost of yard operation by eliminating car riders and switchmen, the car retarder system has produced other results, some of which were not anticipated. For example, in one large yard that was formerly operated for only two tricks during average business seasons in order to reduce expenses, it was found that with retarders the expense is so low that operation is extended to all three tricks, which not only reduces delays in the yard but also permits a more even spacing of departing trains. Another advantage is the increased capacity of a car retarder-equipped yard which permits the handling of peak business without delay. The car retarder has now been developed to the point where it may be said that the manufacturers have eliminated the original defects in the apparatus, railway engineering officers have determined the proper grades and track layouts for retarder operation, and operating officers have revised the details of their methods of yard operation with retarders. The proper background has been sufficiently developed to warrant the serious consideration of retarders in many other yards over the country.

The Trend Towards Use of Heavier Rail

ONE of the outstanding developments in track maintenance during the last ten years, and particularly during the last three or four years, has been the increasing use of heavier rail. This trend is revealed by a study of the statistics prepared each year by the American Iron and Steel Institute. As shown in the data published in the *Railway Age* of April 7, page 800, 1,931,948 tons, or 68.8 per cent, of the 2,806,930 tons of rails rolled by the mills of the United States last year were of sections weighing 100 lb. per yard or more, whereas only 12 per cent weighed less than 85 lb. per yard. The rapidity of the transition that is occurring is shown by the fact that as recently as 1919 less than 22 per cent of the production was of sections weighing 100 lb. per yard or more and that it was only two years ago that these heavier sections totaled one-half of the entire output for the first time.

This increasing use of heavier rail is indicative of the development that is taking place in the entire track structure. More and better ballast, larger and better manufactured ties, tie plates of more liberal dimensions, stronger joints and fastenings, the more universal use of rail anchors and greater attention to roadbed drain-

age are all contributing to a stronger and more economically maintained track. Such construction is doing much to promote greater regularity in train movement and faster schedules. It is also contributing to increased train loading.

More important, however, is the fact that it is making it possible to maintain the tracks under the heavier and more exacting demands with much smaller expenditures than would otherwise be necessary. This latter effect has not been realized because of the fact that, in general there has been no actual reduction in maintenance expenditures. That a saving is made, nevertheless, can be appreciated by considering the forces and materials that would be necessary to provide the service rendered today with the 75-lb. rail, light ballast, insufficient drainage and inadequate fastenings of a generation ago.

Excellent as is the progress that has been made to date, the goal has not yet been reached, for there is still much more work to be done before the track as a whole will be brought up to the level of the most economical construction. The demonstration already afforded of the economy of the policy of improvement should afford ample incentive for the continuance of the program that has been so well started during the last few years.

Wages Under the Watson-Parker Law

IN REMARKS made at a meeting of the stockholders of the Chicago & North Western Railway on April 10, President F. W. Sargent clearly indicated dissatisfaction with the results of the operation of the Watson-Parker Railway Labor Act. Many other railway executive officers are beginning to feel and express themselves in the same way.

The trend of the cost of living within recent years has been downward rather than upward. The railways have been going through a period of declining rates, of losses of passenger business, and, for a year, of declining freight business. Nevertheless, with one exception, we believe, every arbitration board that has been organized under the Watson-Parker act has awarded an advance in wages. With the one exception noted, these advances have been awarded in western territory, where there has been much complaint of agricultural depression and the railways have fallen far short of earning a fair return measured by any standard, as well as in other territories where conditions and railway results have been better.

Are advances in wages to continue? If so, how are the railways going to be able to pay them and at the same time earn sufficient net return to continue enlarging and improving their properties and rendering good and adequate service? Most railways recently have been trying to maintain their net operating income by a policy of retrenchment which resulted in the number of employees declining to 1,608,000 in February and being less in each of the months of December, January and February than in any other month since August, 1922, when the maximum effects of the strike of shop employees were being experienced. The reduction in the number of employees in the maintenance departments has been relatively so large as to show that maintenance work has been severely reduced. Conditions which caused numerous railway employees to be thrown out of work and the beginning of deterioration of railway properties are not healthy.

There was much difference of opinion among railway executives regarding the desirability of the abolition of the Railroad Labor Board and the substitution for it of arbitration boards each of which would be organized to settle a single controversy, and would, therefore, lack expert knowledge of the railway situation as a whole and of the effects that its decision in its particular case would tend to have upon that situation. It is desirable that railway employees should be paid as high wages as are reasonably practicable, but it is not desirable that they should constantly be granted advances regardless of the probable effects upon railway net earnings and railway service.

If past developments under the Watson-Parker Railway Labor Act are a forecast of future developments under it there will undoubtedly be a large increase in the number of railway officers and students of railway affairs who will accept the view that the repeal of the labor provisions of the Transportation Act was unwise.

Fancy and Facts About Railroad Valuation

NEVER in the history of railway regulation has discussion of any railroad question more completely disregarded realities and probabilities than has the discussion of railroad valuation that is now prevalent. Various public men and writers are making frantic outcries because, as they say, the railways are seeking a cost of reproduction valuation that would amount to from 40 to 55 billion dollars, and rates based on it would be excessive and would result in huge profits for railway stockholders. Some of the cold facts disregarded by those who make such statements are the following:

First, the Interstate Commerce Commission itself has estimated that a valuation based on cost of reproduction in 1923 would have amounted to 33 billion dollars. Why should these public men and writers accept the commission's views of valuation as sound, and, at the same time, use estimates vastly exceeding that of the commission as to what a cost of reproduction valuation would amount to?

Secondly, the railways have been and are now unable to get the commission to let them earn the return the commission itself has held would be fair on its own basis of valuation. The commission eight years ago made a tentative valuation which, including investment since made, now amounts to about $23,500,000,000 and held that a fair annual return on this would be 5-¾ per cent. But it has not let the railways earn this. They have complained to it, they have plead with it, they have argued with it, but the average return they have been allowed to earn during the last seven years on the commission's own basis has been only 4.6 per cent, and in the year 1927 was only 4.72 per cent. As the railways have been unable for seven years to get the commission to let them earn an average of more than 4.6 per cent on its own basis of valuation, why should anybody express so much concern lest they would be able to get it to so adjust rates as to enable them to earn a return of 5-¾ per cent on a valuation 20 to 30 billion dollars larger?

It may be said that they would force it to do so by taking it into court. But if they could do this, why have they not already forced it, by taking it into court,

to let them earn a fair return on its own basis of valuation? Until the railways succeed in getting the commission to let them earn what it has itself held they are entitled to, there will not seem to be much reason for public apprehension and excitement lest it shall fix rates that will enable them to earn two or three times as much.

The counsel of certain railways in valuation litigation are insisting that effective or even dominant weight shall be given in valuation to cost of reproduction; but no spokesman of the railways ever has yet said that they expect to get rates fixed on that basis. Furthermore, the advocacy of cost of reproduction as an important factor in valuation did not, it should be remembered, originate with the railways, but with William J. Bryan and other foes of railway prosperity when the latter were trying many years ago to get rates based on reproduction cost because it would then have been less than actual investment. It was they, and not railway attorneys, who first convinced the Supreme Court of the United States that, on constitutional principles, weight must be given to cost of reproduction. The valuation law of 1913 directs the Interstate Commerce Commission to ascertain cost of reproduction among other factors. But that law was not written by railway executives or lawyers but by the late Senator Robert M. LaFollette of Wisconsin.

If Mr. Bryan and Mr. LaFollette were true friends of the people, why should the railways now be lambasted for advocating recognition of a principle that these friends of the people got adopted as a part of the law of the land?

There are certain politicians and newspaper writers who deliberately desire to arouse public sentiment against the railways. In some cases they want to use such sentiment to get votes for themselves. In other cases they want to arouse it for the purpose of promoting the cause of government ownership of railways and other socialistic projects. To a politician or socialistic writer who has a natural gift for prevarication no subject of current interest could be more alluring than that of railroad valuation, with the big figures that can be used in reference to it.

Why Pay Pensions?

A CONSIDERABLE number of industries have inaugurated old-age pension plans in recent years. This in spite of the fact that not a few of the plans installed in the earlier days were found defective or have failed. More and more scientific study and attention is now being given to this problem. For one thing, an effort has been made to determine the extent to which the reasons that were advanced in the earlier days for the establishment of such plans were sound. In the report of the Special Committee on Industrial Pensions, published by the Merchants' Association of New York in 1920, the section discussing the success of pension plans was opened with these significant questions: "Have pension systems brought about increased loyalty and appreciation on the part of the employees, tended to quiet industrial unrest, reduced labor turnover, promoted efficiency, fostered individual thrift, or attracted a superior grade of workers? Above all, have they improved the economic status of the workers by assuring an independent old age?"

The findings of this committee are summarized at the end of the discussion in these words: "Although it is evident that private industrial pension systems in effect in this country have fallen far short of producing results often claimed by their enthusiastic supporters and hoped for by many employers installing them, nevertheless most employers consider them successful. The answer to this apparent riddle is that, after all, the employer in inaugurating a pension system is chiefly interested in assuring a comfortable old age to such employees as grow old in his employment. The moral obligation which the average employer assumes is fulfilled through an old-age pension system and, therefore, the employer considers it successful."

Luther Conant, Jr., in his book on A Critical Analysis of Industrial Pension Systems, published in 1922, in concluding the discussion of the purposes of pension systems, makes this statement: "To epitomize the preceding discussion it may be concluded that a private employer is under no compelling moral obligation to provide for the support of his superannuated employees in their old age. Nor can a pension system primarily be regarded as a method of rewarding faithful service, although this purpose may be present. It may further be concluded that the prospect of reducing labor turnover, or of exercising disciplinary control over workers, does not promise results of sufficient importance to warrant the expense of a pension system, while the latter purpose is in many respects inherently objectionable. It follows, therefore, that *the one controlling justification of a pension system from the employer's standpoint is that it will increase efficiency, primarily through elimination of superannuated and incapacitated workers,* and possibly by building up a larger amount of good will and interest among the active force. (The italics are ours.) Although some of the other purposes discussed are important, they are incidental to the primary object of increasing efficiency."

In other words, a pension system is apparently justified only to the extent that it improves the efficiency of the organization and is a sound business proposition. In the transportation field the question of safety is involved and assumes a much larger importance than in other industries. It is absolutely essential that men who become physically incapacitated as they advance in years, be retired or assigned to jobs which do not in any way involve the safety of operation.

J. C. Clark, in an article on Railroad Employees' Pension Plans in the *Railway Age* of April 17, 1926, concluded that a pension plan on a railroad "is, in fact, a good business policy *if properly administered.*" (The italics are ours.) This, in general, seems to be the conclusion of most of those who have made a thorough analysis of the pension question and a study of its practical results. Greater and greater emphasis is being placed on the question of proper administration of such plans and the whole situation has been under a most critical survey and study to determine how the shortcomings in many of the pension plans can be overcome, in order that they may be placed on a more sound and substantial foundation.

That the railroads should give special attention to this problem is indicated by the fact that they were among the earliest to establish such plans and that many of those which have installed pension plans in recent years have based them largely on the practices of the pioneers in the field. It seems important, therefore, that the railroads should spare no effort to make themselves familiar with and profit from the findings of the various groups that have engaged in a scientific research and study of this question.

Lackawanna Rebuilds Binghamton Freight Facilities

Provides large modern house, transfer platform and adequate teaming accommodations

The Lackawanna's New Freight House at Binghamton, N. Y.

THE Delaware, Lackawanna & Western has recently completed entirely new less-than-carload freight handling facilities at Binghamton, N. Y., which are designed not only to serve present industries effectively, but also to stimulate increased industrial activity at this point. These facilities consist principally of a modern, one and two-story brick and concrete freight house, about 500 ft. long by 50 ft. wide, a covered transfer platform, 870 ft. long by 18 ft. wide, an automobile dock, 240 ft. by 40 ft., six house and transfer tracks with capacity for 114 cars, and four groups of team tracks with a total capacity of 100 cars. The entire layout is provided with wide concrete driveways with easy access from the city streets, and one of the team track units is served by an overhead traveling crane of 25 tons capacity for handling heavy shipments.

Binghamton an Important Point

Binghamton has a population of about 80,000, and is the largest of what are known as the Triple Cities, the other two being Johnson City and Endicott. These cities closely adjoin each other and have a total population of about 125,000. It is located on the main line of the Lackawanna, midway between Buffalo and New York, and in the midst of about 260 active industries.

Binghamton is also an important terminal point on the Lackawanna. From here the Syracuse division extends through Syracuse to Oswego, N. Y., 115 miles, and the Utica division to Utica, 95 miles. About 400 cars are handled in interchange with the Delaware & Hudson daily. A large l. c. l. tonnage is also transferred at this point, to and from New England and for the Syracuse and Utica divisions.

Old Facilities Were Outgrown

The old freight house of the Lackawanna at Binghamton was for many years the freight terminal of the Syracuse, Binghamton and New York railroad, now the Syracuse division of the Lackawanna. This house, which was located in a congested area just east of the passenger station, was a one and two story frame structure, 380 ft. long by 30 ft. wide, supplemented by a 240-ft. covered platform at one end. For 26 years this old house served Binghamton without any material change in its size or arrangement, the last important change having been made in 1900 when the second story was added to provide space for a general freight office.

Adjacent to the old house were team tracks having a capacity of 48 cars, served by brick driveways of sufficient width to accommodate horse-drawn drays only. Heavy freight at the house was handled with a hand-operated crane located on a flat car and automobiles were handled over a small automobile dock with a capacity for four cars. To relieve the congestion at the old freight house some years ago, a freight transfer platform, a warehouse and office, and several tracks were constructed in a different location but the situation was both unsatisfactory and uneconomical.

Because of this condition, the Lackawanna undertook about two years ago to rebuild its Binghamton freight facilities completely, in a new location which would afford adequate space for the larger facilities planned. The site selected was a triangular plot of ground, directly south of its tracks and its old freight house, within the block bounded by Fayette street on the west, Henry street on the south and Liberty street on the east. This area, which includes about eight

Looking Through the Interior of One Section of the House

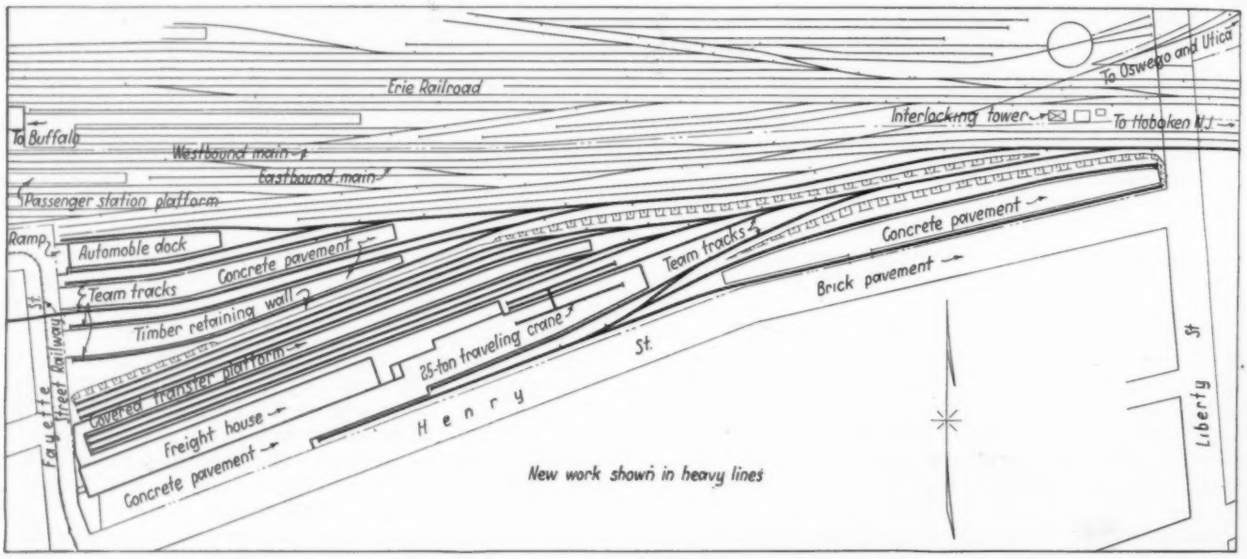
acres, together with the site of the old freight terminal, has been developed for the new freight facilities. While the new site was particularly well situated for the new layout, it had the one disadvantage that the ground along Henry street, about midway between Fayette and Liberty streets, was about 12 ft. lower than the main line tracks. This difficulty was overcome, however, by laying out the facilities at different levels, and by constructing the leads to the various service tracks on suitable grades from the main line.

The New Freight House

The new freight house, which is 501 ft. 4 in. long by 50 ft. wide, with a second floor 101 ft. 4 in. long at the front end, faces on Fayette street, and is parallel with and at the level of Henry street, 56 ft. back from ft. high, are of wood construction, with glazed upper panels to assist in daylighting the freight room when the doors are closed. All of the teaming doorways at the house are protected against damage by heavy reinforced concrete, steel-clad fenders, built directly into the foundations, as well as by 10-in. by 12-in. steel-protected bumping timbers.

The main daylighting of the room is secured through two rows of continuous steel sash, which extend along the sides of the freight room, directly above the doors. These sash are the top-hung type with suitable hand-operated opening mechanisms along the side walls to afford ventilation.

In order to facilitate trucking to and from cars, a concrete platform, 10 ft. wide, was provided along the entire track side of the building and extended around on



Layout of the Lackawanna's New Local Freight Facilities at Binghamton

that street's property line. The walls and pilasters of the one story portion of the freight house are constructed entirely of local common brick, while the walls of the two-story section are constructed of reinforced concrete with a common brick exterior facing. The entire building is supported on a concrete foundation.

The roof of the single-story section is constructed of heavy planks, protected by built-up waterproof asbestos felt, and is carried on pine purlins and steel trusses which extend across the building from wall to wall. The roof over the two-story portion of the house is of flat reinforced concrete construction, supported on structural steel members. Likewise, the second floor of the building is of reinforced concrete, this being supported by encased steel beams carried on columns similar to those supporting the roof structure. The roof covering over the two-story section, like that over the main freight shed, is a built-up waterproof asbestos felt.

Teaming Doorways Unusually Well Protected

The entire ground floor is utilized for freight handling purposes, with the exception of an area across the front end, 16 ft. wide, which is used for offices, an entrance lobby and general freight house utilities. So planned, both the north side of the house, which faces the house tracks, and the south side, which is used for teaming and trucking, are fitted throughout with large freight doors of the horizontal turnover, counterbalanced type. These doors, which are 10 ft. wide by 10

the east end, into a platform 19 ft. 8 in. wide. Joined with this latter platform are two other sections of concrete platform, lying end to end, parallel with the house tracks, and forming, in reality, an extension to the house platform. These sections are 80 ft. by 36 ft., and 120 ft. by 20 ft., respectively, the narrower section lying furthest from the house. Throughout the length of the house, the platform is protected from the weather by a reinforced concrete canopy supported on a structural steel frame, which is held by tie rods to the face of the building. On the trucking side of the house, where there is no platform, a similar canopy affords protection to shipments and truckers during loading and unloading operations. Both of the canopies are waterproofed with built-up smooth top asbestos felt.

Asphalt Mastic Affords Protection for Maple Flooring at Doorways

The main trucking floor of the freight house, which is 474 ft. long and the full width of the building, has an area of 21,752 sq. ft. This area is divided into four nearly equal sections by brick fire walls, the openings in which are protected with large, automatic, metal fire doors. The floor of the freight room, which is at car floor height, is constructed entirely of wood, with a 13/16-in. factory grade maple trucking surface, which rests upon a two-inch creosoted North Carolina pine sub-flooring laid diagonally across the width of the building. The sub-flooring in turn is laid on 3-in. by

4-in. creosoted North Carolina pine sleepers, 18 in. center to center, which rest directly upon a bed of tamped cinders. The areas directly in front of the team doors are paved with asphalt mastic, laid flush with the top of the finished floor. This pavement, which extends across the full width of the door openings and well into the room, protects the maple flooring against the weather, and at the same time absorbs the wear which is usually most severe at these points.

With the exception of the second floor supporting columns at the front end of the house, the only obstructions to the freight house floor area are the three fire walls, five four-ton scales with their platforms flush with the floor, a service room for perishable and valuable consignments, two tally or clerk's booths, a small toilet room and a lunch and locker room for the freight handlers.

The office portion of the first floor consists of an entrance from Fayette street, a cashier's office and a lobby from which stairs lead to the second floor and also to a small basement area directly beneath. The lobby serves the cashier's office, which is 16 ft. by 20 ft., and is separated from it by means of a wood and glass partition and the necessary counters for the convenience of patrons.

Second Floor Provides Adequate Office Space

The second floor area of the new freight house is used exclusively for freight offices, with the exception of a small section at the rear end which is divided into offices for the bridge and building department. This latter space is approximately 19 ft. long across the width of the building, and is served by stairs from the loading platform.

The offices for freight purposes consist of a private office, 16 ft. by 14 ft., a chief clerk's space, 13 ft. by 16 ft., a general office area, 48 ft. by 35 ft., and a file or record storage room, 27 ft. by 48 ft. Other facilities on this floor include a men's lavatory and locker room, a women's lavatory and a separate toilet room in the rear for the use of the bridge and building department.

The second floor construction is of reinforced concrete with steel encased floor beams. The finished floor in all offices is of maple, laid directly upon sleepers which are wired to the concrete floor construction. The stairs leading to the second floor and also the halls and toilets have cement finished floors. All partitions throughout the second floor are of either terra cotta block or two-inch solid plaster, except the sub-partitions between the bridge and building department offices, which are of wood and glass construction. The ceilings and side walls on this floor are plastered throughout, the ceilings being hung from the roof structure above.

The office portion of the building on both floors, including the stairs, halls, toilets and service room, is heated by a direct steam heating plant located in the basement under the first floor offices. This basement, which is 16 ft. wide, extends across the full width of the building, and has an average height of 9 ft. The main freight room of the house is not supplied with heat except the clerk's booths which are heated by electricity.

All of the offices throughout the second floor are ventilated by means of metal ducts concealed in the partitions and side walls. These ducts are carried into the attic space above the second floor, where they discharge through three metal ventilators on the main roof.

The entire building, including the platforms, is adequately lighted by electricity. In addition to overhead lights, special outlets are provided under the platform on the track side of the building for extension lines into cars. The long platform beyond the east end of the house is illuminated by three flood lights located on the end of the building. Fire protection is provided in the form of hydrants in each division of the house on the main floor and through stand-pipes which are carried up to the second floor level.

The New Freight Yard Showing a Part of the Team Tracks, Driveways, Transfer Platform and Freight House

Long, Covered Platform Facilitates Handling Transfer Freight

The track layout serving the freight house lies parallel with the house, along the north side, and consists of six tracks with a total capacity of 114 cars. These tracks are laid out in two groups of three tracks each on 12 ft. 6 in. track centers, the groups being separated by a long covered transfer platform. This platform, which is 870 ft. long by 18 ft. wide, also extends around the west end of one group of the house tracks to a connection with the trucking platform serving the house.

The flooring of the transfer platform is of two-inch planks, laid lengthwise the platform. Each side of the platform is fitted with two six-inch channels, laid 23

in. center to center, and flush with the top of the platform, to form a trucking surface. The shed over the platform consists of round, cast iron columns, spaced 16 ft. center to center, which support steel roof trusses and 1⅛-in. roof sheathing on which a commercial roll roofing is placed. All of the shed columns were cast in the road's own foundry and all of the shed trusses were fabricated in the company's bridge shop.

On account of the necessity of constructing the transfer platform on a newly made fill, before adequate time had been allowed for settlement, the substructure was formed of three parallel rows of creosoted pine piling, the center row supporting the shed columns, while the

The 25-Ton Crane Which Serves One of the Team Tracks

two outside rows carry the weight of the platform. Above the piling, with the exception of the trucking surface, the platform is constructed entirely of creosoted timber.

Wide Concrete Driveways Serve Team Tracks

The team tracks in the new freight layout are separated into four groups which have a total capacity of 100 cars, and are each served by wide concrete driveways. One of these groups with a wide driveway lies adjacent to Henry street. Another group, consisting of two short tracks, is at the east end of the freight house driveway, where one of the tracks is served by an overhead electric traveling crane. This crane, which has a capacity of 25 tons, travels a distance of 180 ft. on a structural steel runway, spanning the track and 20 ft. of the driveway area. The other two groups of tracks, which have two tracks each, are located on a higher level, just north of the freight house and transfer tracks. Each pair of these tracks is served by a driveway from Fayette street.

Pavement

The driveways in the layout have an average width of 40 ft. and are constructed of reinforced concrete, eight inches thick, placed on six inches of cinders, which were wetted down and then compacted with a 12-ton steam roller. The concrete pavement was constructed in blocks 12 ft. by 30 ft., with premolded expansion points. In finishing the joints the upper two inches of each joint was cut out after the pavement was laid, and a hot bituminous filler was poured in the opening to seal the joint against seepage and frost.

Automobile Platform

The new automobile platform at the freight station is of timber construction, 240 ft. long by 40 ft. wide. This facility occupies the site of the old freight house at the junction of Fayette and Lewis streets and is served by a six-car track on each side. The platform has a ramp leading down to the street level at one end, which also extends to one side, across the end of one of the platform tracks, for unloading end door cars.

New Facilities Effect Economies

With the completion of the new freight house in June, 1927, the old freight house was torn down and the remainder of the new facilities were completed. Since the entire layout has been in service, many advantages have been apparent. Whereas the transfer business was formerly handled separately, it is now possible to consolidate the transfer business with the city business, thus eliminating the loading of duplicate cars. Congestion at the freight house has been entirely relieved and economy is being effected in switching operations.

The new improvements, in connection with the freight facilities, have also made it possible to lengthen the main line station platform 180 ft. and increase the length of the station coach tracks an average of 175 ft.

All of these new facilities at Binghamton were planned and constructed under the direction of George J. Ray, chief engineer. The new freight house was designed in the office of D. F. Mack, architect. The actual work in the field was carried out under the general supervision of L. L. Tallyn, division engineer, at Scranton, Pa., to whom we are indebted for the information contained in this article.

* * *

Photo by H. Armstrong Roberts.

One of the 68-Ton Baldwin-Westinghouse Locomotives

Electric Locomotives Operate on Three Different Voltages

Thermometers in the motors which automatically prevent overheating are an added feature of motive power used on the Sacramento Northern

By W. R. Taliaferro

Railway Equipment Engineering Department,
Westinghouse Electric & Manufacturing Company

TWO 68-ton electric locomotives recently placed in service on the Sacramento-Northern Railroad are arranged for operation on three different voltages. This unusual feature enables them to be used on the present system where power is collected from either a 1200-volt overhead or a 600-volt third-rail and on an extension of the system which is under way, where a 1500-volt trolley will be used. The two new locomotives are arranged for essentially full speed operation on any one of the three voltages when power is being taken from either a third-rail or an overhead wire.

To obtain efficient acceleration and full speed at all voltages the traction motors are grouped in three motor combinations; namely, series, series-parallel and parallel. The parallel combination, however, is not used when operating on 1200 or 1,500 volts.

The motors are arranged for both full and short field operation. The change-over is effected by means of a group of cam-operated switches controlled by an electro-pneumatic air engine. By means of a current limit relay and suitable control circuits the short-field connection is obtained in any short field notch on the master controller only when the current drawn by the traction motors is below a predetermined value, thus releasing the power system from heavy loads while the locomotive is delivering large tractive forces. The control is so arranged that once the motors are connected for short-field operation they remain so regardless of changes in current until the master controller handle is moved to a full field position.

The master controller is of the single-pull type, has 27 notches, an "off" position and two transition spaces. It contains the usual interlocking features of a two-speed controller and in addition is electrically interlocked with the rest of the electrical equipment to prevent the parallel motor combination from being set up when the locomotive is operating on the higher voltages.

Contact Change-Over Apparatus

By means of selective relays the locomotive is arranged to change over automatically, while in motion, from third-rail to trolley operation, or the reverse, and from 600- to 1200- or 1500-volt operation.

The change-over between trolley and third-rail at the same voltage can be made without the use of a dead section, provided trolley and third-rail are tied together in the power system. The change-over from one voltage to another is always made on a dead section over which the locomotive must coast.

The trolley-shoe change-over equipment consists of two relays, an electro-pneumatic drum and a set of unit switches. One relay is connected to the trolley circuit while the other is connected to the shoe circuit. To effect a change-over, one relay must be energized while the other is de-energized, under which condition

the drum is thrown over by its air engine to the trolley or shoe position as determined by the relay which is energized at the time. When both relays are energized or de-energized no change-over occurs.

The change-over drum carries main contacts for connecting the auxiliary apparatus to the trolley or shoe circuits as required, and interlock contacts which set up control circuits which cause the proper unit switches to close for connecting the main motors to the trolley or shoe circuits.

Voltage Change-Over

The 600- to 1200- or 1500-volt change-over equipment consists of a high and a low voltage relay, a drum type change-over for connecting the double voltage compressors and dynamotors for 600- or 1200-volt operation and a push button at each engineman's position.

The air engine of the drum is equipped with a standard and an inverted magnet valve which always cause it to throw to the high voltage position when the magnet valves are de-energized, thus assuring that the locomotive will be in the safe or high voltage connection or will throw to this position should power be removed from the locomotive through failure or any other cause.

The low voltage relay makes contact when energized and the high voltage relay makes contact when de-energized. The low voltage relay is set to lift at 300 volts and to drop at 200 volts, and the high voltage relay is set to lift at 750 volts and to drop at 200 volts. The contacts of these two relays, the two magnet coils of the change-over drum and a push button on the meter panel in each engineman's compartment are connected in series with a source of control power.

To facilitate an understanding of the operation of the change-over equipment it may be assumed that the locomotive is running on a 600-volt line and about to run onto a dead section between the 600-volt line and a 1200- or 1500-volt line. The low voltage relay is lifted, the high voltage relay is down and the change-over drum is thrown to the 600-volt position because the magnet valve coils are energized. Upon reaching the dead section the low voltage relay will drop since it is de-energized and the drum will throw to the 1200-1500-volt position because the magnet valve coils are de-energized. A few seconds later the locomotive will reach the 1200- or 1500-volt line, both relays will pick up, as the voltage is above 750. No further change will take place since both relays are lifted and the circuit broken.

Assuming that the line voltage fails, the change-over will remain in the high voltage position if the locomotive is operating on a high voltage line or throw to that position if not already there. Hence any failure places the equipment in the safe or high voltage connection.

Assuming that the line voltage has become abnormally low, (below 200) both relays will then drop but no change in the position of the drum will occur if operating on a 1200-1500-volt line. If operating on a 600-volt line the drum would throw to the safe or 1200-1500-volt position. However. if the line voltage of a 1200- or 1500-volt line, after falling to zero, would rise to between 300 and 750 volts, the low voltage relay would close. The drum would then throw to the 600-volt position were it not for the push button on the meter panel in each engineman's compartment which still holds the circuit to the change-over drum magnet valves open. In this manner it is made impossible for the locomotive to be placed in the low voltage connections by false operation of the equipment while on a high voltage section with low voltage on the line.

If the locomotive is moving from a high voltage section over a dead section to a low voltage section, upon reaching the dead section both relays drop, but since the change-over is already in the 1200-1500-volt position no change takes place. Upon reaching the 600-volt section the low voltage relay lifts. No change-over is effected, however, until the engineman presses the push button on the meter panel completing the circuit and causing the change-over to throw over to the 600-volt position where it is held by air as long as the low voltage relay remains energized and the high voltage relay remains down.

Pressing the push button while operating on a 1200- or 1500-volt line has no effect as the circuit is held open by the high voltage relay being lifted.

When operating on from 1350 to 1500 volts, a voltage relay functions to open magnetic contactors inserting resistance ahead of the dynamotor and compressor motor. The traction motors are designed to operate on 1200 or 1500 volts when two are connected in series. Each of the four motors is protected against overloads by means of an overload trip relay, which when tripped, causes resistance to be inserted into the circuit to cut down the current and then causes the line switches to open.

Each third rail shoe and trolley circuit is equipped with a railway type magnetic blowout fuse box. The trolley circuit is protected from lightning by an electrolytic lightning arrester. All lighting and auxiliary motor circuits are protected by fuses.

The traction motors are each equipped with a contact-making thermometer sealed in a brass tube and inserted in a copper cell which is in turn embedded in the field winding. Leads from these thermometers are carried into the cab to a relay which functions to take power off the motors should they reach a predetermined maximum temperature for which the thermometers are set. This relay and cutout switch are mounted in a sealed steel box. If it is essential to operate the locomotive even with hot motors the seal may be broken by the engineman and the switch closed, thereby restoring power.

In addition to the temperature trip relay and thermometers, the locomotives are equipped with temperature indicators which give the engineman a continuous indication, electrically, of the temperature of the motors as long as they are taking power.

The locomotive is equipped with type 14-EL independent and automatic air brake equipment including two type D-4-N double voltage compressors of 50 cubic foot capacity each.

Two dynamotor blower sets are used for ventilating the traction motors and for supplying power at 600 volts for control, lights and heater circuits. Additional auxiliary apparatus consists of four 2000-watt cab heaters, two electric classification lamps, two high-power headlights, two pneumatic window wipers, four third-rail shoes and one pantograph. Space is provided on the roof to mount a wheel trolley in addition to the pantograph, if desired.

The mechanical parts are modified class D, Baldwin-Westinghouse design, consisting of two four-wheel swivel trucks and a steeple type cab, under the hoods of which are mounted the dynamotors, blowers and compressors. The cab contains two operating compartments with engineman and helper's positions, a central equipment compartment containing the accelerating resistors, unit switches, reversers, change-over switches, etc.

Beneath the cab, and between the trucks, are located two of the main air reservoirs, the brake cylinder and brake slack adjuster. On the roof of the cab are located two main air reservoirs, pantograph grounding

switch, a pantograph, and the locomotive whistles. The headlights are carried on top of the hoods. One bell, air and hand operated, is carried on one hood.

Ratings and Dimensions

600-1200-Volt Ratings—Forced Ventilated				
Field	Hp. at Rail	Tractive Force	M.p.h.	Motor Amps.
S. F. Hourly	1,010	21,800	17.4	356
F. F. Hourly	928	24,000	14.5	331
S. F. Cont.	744	13,800	20.2	260
F. F. Cont.	705	16,000	16.5	245
1,500-Volt Ratings—Forced Ventilated				
Field	Hp. at Rail	Tractive Force	M.p.h.	Motor Amps.
S. F. Hour	1,180	19,400	22.8	330
F. F. Hourly	1,100	22,000	18.8	310
S. F. Cont.	932	13,600	25.7	260
F. F. Cont.	890	16,100	20.7	245

Maximum safe speed	35 M.p.h.
Maximum tractive effort	45,300 lb. at 33 1/3 per cent adhesion.
Length between coupler knuckles	37 ft., 11½ in.
Length over bumpers	34 ft., 4 in.
Height over roof	12 ft., 0¼ in.
Height over pantograph (down)	16 ft., 0¼ in.
Height of drawbar	34½ in.
Total wheel-base	25 ft., 0 in.
Rigid wheel-base	7 ft., 4 in.
Wheel diameter	36 in.
Width over cab sheets	10 ft., 0 in.
Gage	4 ft., 8½ in.
Gear ratio	18:68

The mechanical parts for these locomotives were built by the Baldwin Locomotive Works. The electrical equipment was built and the complete locomotives assembled by the Westinghouse Electric & Manufacturing Company.

Certificate Denied for Electric Line Extensions

Washington, D. C.

THE Interstate Commerce Commission on April 14 issued its decision denying the application of the Piedmont & Northern, an electric railway controlled by the estate of the late J. B. Duke and associated interests, for authority to construct extensions from Spartanburg, S. C., to Gastonia, N. C., 53 miles, and from Charlotte to Winston-Salem, N. C., 75 miles, which would have closely paralleled the line of the Southern. The application was opposed by most of the steam railroads of the Southeast and the case was sharply contested, both at the hearings and in the oral argument before the commission. Charles E. Hughes, former justice of the Supreme Court of the United States, and Mark W. Potter, a former member of the commission, were among counsel for the applicant electric railway and W. G. McAdoo, former director general of railroads, appeared in support of the application on behalf of the Georgia & Florida, which expected to form part of a through route with the applicant.

The commission in its report said that "competition reasonably necessary should be provided without extensive duplication" and that the construction of the applicant's railroad and of its proposed extension "present a rather extraordinary case of paralleling an existing line." The report also mentioned the point that the revenue to be taken from existing lines would be owing in part to the power of the applicant to control traffic of companies owned by the same interests.

The electric company had taken the position that the commission was without jurisdiction because the construction proposed would merely complete a project initiated before the passage of the transportation act and that its line is an "interurban electric railway." The commission finds that the record does not warrant the conclusion that the promoters had any definite intention to build to Winston-Salem and that whatever the intent it was not translated into corporate action until November 3, 1926. The application was filed on March 26, 1927. The commission also holds that the railroad, as proposed to be extended, would be "a commercial railroad operated by electricity and not an electric interurban line within the meaning of paragraph (22) of Section 1" and that, therefore, it had jurisdiction.

The report concludes as follows:

The proposed lines would closely parallel existing railways throughout their entire length. They would touch no local point of importance not served by existing lines, and the territory to which they would bring rail transportation closer is very small and of limited possibilities in agriculture. The territory to be traversed has excellent highways. There is bus and truck service on highways that closely parallel the proposed route. The railways have good and prompt service to all points that could be reached by the proposed lines and their connections. Some defects are shown in the less-than-carload service of the Southern in this territory, but they are not inherent in the physical property and should be removed, or at least diminished, by administrative measures which are being taken. The existing lines have a present developed capacity in excess of present traffic requirements, and a much greater potential capacity. The through routes proposed in connection with the applicant's extended line are generally longer than existing routes, so far as the record permits comparison, and are not shown to have substantial advantage in other respects, or any economy in the cost of transportation. They would no doubt tend to strengthen the G. & F., which carrier, however, has obtained permission to extend its line without mentioning these proposed extensions as necessary to its success. They would also tend to diminish the usefulness of the connection which is to be built between the L. & N. and the Clinchfield, and to postpone carrying out the ultimate plan for that connection, which would effect a further reduction of 52 miles in the L. & N.-Clinchfield route. This enterprise has more value to the system of through transportation than anything that could be accomplished by the proposed extensions. The proposed lines would earn a revenue sufficient to justify their construction, if it were not to be diverted from existing lines, particularly from the Southern, which they would closely parallel. They would owe this revenue in part to the power of the applicant to control traffic of companies owned by the same interests, and in some degree to the power of those interests to influence the routing of traffic other than their own. There would no doubt be some benefit to the region immediately served, notwithstanding some impairment that would be likely to result, temporarily at least, in the service of existing lines. These benefits would be largely of a competitive nature, that is at the expense of other localities, and could probably be urged in favor of duplicating most of the railway lines in the United States. Competition reasonably necessary should be provided without extensive duplication. The construction of the applicant's railroad and of its proposed and projected extensions present a rather extraordinary case of paralleling an existing line. The presumption against such paralleling as is now proposed can not be overcome by such evidence as is here presented. The investment proposed would not be justified by the net addition to the railway revenues of the country. The competitive nature of the enterprise is aggravated by the association of the applicant with large interests which have the power to control or influence much traffic on other grounds than transportation service. There would be some advantage, both to the applicant and to the communities served, in joining applicant's two existing lines. Only a small part of the traffic handled on either is or would be destined to points on the other. They are being operated successfully, and the evidence presented does not justify further paralleling the Southern closely for a distance of 53 miles.

Commissioner McManamy, in a dissenting opinion in which Commissioner Esch joined, said that "under such conditions benefit to the region immediately served should not be denied because of the probability that some temporary impairment might result to existing lines when as a matter of fact the showing is that diversion of all the traffic which protestants claim would be diverted would not seriously affect their revenues." Commissioner Brainerd, dissenting, said that the act does not distinguish between a "commercial railroad operated by electricity" and an interurban electric railroad not operated as part of a general steam railroad system of transportation," and that "we can make no such distinction." Commissioner Aitchison did not participate in the disposition of the case because of absence and Commissioner Woodlock was absent but a note states that had he been present he would have concurred in the result.

Lake Cargo Rate Order Enjoined

Special court finds that commission exceeded its powers

WASHINGTON, D. C.

TAKING the position that the orders of the Interstate Commerce Commission in the "lake cargo" coal rates cases represent "in essence a regulation of industrial conditions through the manipulation of rates" and that the commission had exceeded its powers and proceeded upon erroneous theories of law, a special court of three federal judges sitting in the United States district court for the southern district of West Virginia on April 14 handed down a decision granting an injunction against the commission's order of February 21 in which it ordered canceled tariffs reducing the lake cargo rates from the "southern district" mines.

The injunction was granted on application of the Anchor Coal Company and other coal operators of the southern district, on which argument was held at Charleston, W. Va., on March 19. The decision is by Circuit Judges Parker and Northcott and District Judge McClintic. The commission has indicated its intention of appealing the case.

The court finds in the Hoch-Smith resolution no justification for the commission's order and says the fact that the commission seemed to consider that the resolution required it to consider or give effect to industrial conditions and the shift of traffic, "or at least showed a spirit and purpose in that regard which should be deferred to," is of itself sufficient to invalidate the order complained of. The order was enjoined on the following grounds: (1) Because the commission exceeded its powers in that its action was based, in part at least, upon industrial conditions and was essentially an effort to equalize industrial conditions or offset economic advantages through adjustment of rates; (2) because it proceeded upon an erroneous theory of law in holding that the burden was upon the southern carriers to justify a reduction of rates by a comparison of the reduced rates with lower maximum rates prescribed for a competing field; and (3) because it proceeded upon an erroneous theory of law in holding that the burden was upon the carriers here to justify the proposed reduction of rates under Section 15 (a) (2) of the Transportation Act of 1920 and the Hoch-Smith Resolution.

It is perfectly evident from a study of the reports of the commission that, in reducing the rates from the northern field, and in directing the cancellation of the reduction from the southern field, the commission was primarily concerned not in fixing rates but in fixing the differential which was to prevail between the two fields; and that, in expanding the differential to 45 cents and in refusing to allow the old differential of 25 cents to be restored, the commission based its action upon the shift of tonnage from the northern to the southern field and the industrial conditions resulting therefrom. The rates proposed were not so low as to burden other traffic or prevent the carriers realizing a reasonable return on invested capital or value, and the commission did not order their cancellation on any such ground. Even after the reduction they would be 25 cents higher than the rates from the northern field; consequently, considered independently of such matters as the cost of production of coal, they could not have interfered with the traffic of roads having a rate of 25 cents per ton lower. The only way in which they could be said to interfere with the traffic from the northern field, would be that on account of the difference in industrial conditions in the two fields, the southern field would be able to undersell and get the business ever though paying a rate 25 cents per ton higher, whereas it would not be able to undersell if the differential were made higher than that. But it must be manifest that increasing the differential to meet such a situation is not regulation of rates but regulation of industrial conditions under the guise of regulating rates. It means nothing more nor less than that because one community is able to produce coal more cheaply than another and thereby get a large share of the business which has been going to the other even though paying a considerable differential in freight, the commission is placing upon it a handicap by increasing the differential in rates and thereby equalizing the advantage which it has in a low cost of production. It matters not what this may be called, it is in essence a regulation of industrial conditions through manipulation of rates.

It is said that the increase of the differential resulting from the lowering of the rates from the northern field and the cancellation of the reduced rates from the southern field is justified by the longer haul from the southern field; but rates are not fixed upon a mileage basis and the rate for the longer haul, if higher than the rates of competing roads or rates from competing communities, cannot be of consequence to any one except the carriers concerned unless they result in such impairment of earnings as to make the rates unreasonably low *per se,* that is so low as not to yield a reasonable return upon the investment of the carrier or throw an undue burden upon other traffic. The commission recognizes that length of haul is not in itself a sufficient reason for increasing the differential or refusing a reduction which would leave the rate higher than rates from competing communities, and comes back to the proposition that the change is justified because of conditions in such communities.

If we are correct in our analysis of the reports of the commission, there can be no doubt that it exceeded its powers. Of course, since the passage of the Transportation Act of 1920, the commission has the right to prescribe minimum rates, and we agree with the commission that a construction of the law is too narrow which limits its right to prescribe such rates to cases where the rates proposed are unreasonable *per se* or are so low as to cast a burden on other traffic. It has the right to prescribe minimum rates also to prevent ruinous rate wars and to guarantee reasonable earnings not only to the carriers affected but also to competing carriers who may labor under a higher cost of doing business. And where the commission fixes a rate or prescribes a minimum in the exercise of the powers conferred upon it, the courts will not interfere with its action however much they may disagree with its reasoning. The commission does not have the right, however, to regulate industrial conditions under the guise of regulating rates. And in a case like this, where there is no rate war, where there is no finding that the rates condemned will deprive the carriers of a fair return, and where they cannot injure competing carrier or carriers from a competing locality because they are actually higher than the maximum rate which such carriers may charge, the commission does not have the right under the law to prohibit the reduction because of a shift in traffic which has occurred from the locality having the lower to the locality having the higher rate.

Hoch-Smith Resolution

The commission seems to have thought that it was justified in considering industrial conditions and the shift in traffic as a reason for widening the differential because of the provisions of the Hoch-Smith resolution. And in condemning the reduced rates which would have restored the old differential it says that the carriers have not shown that they are justified under that resolution. We do not think, however, that the Hoch-Smith resolution, 43 Stat. 801, Ch. 120, was intended to confer, or did confer, any such power upon the commission.

So far as it affects the question here, this resolution does no more than authorize the commission to grant relief against rates found to be unjustly discriminatory or unduly preferential, thereby imposing "undue burdens or giving undue advantages." But, as pointed out above, a rate could not be said to give undue advantage to a locality as against a competing locality or to impose an undue burden on such competing locality where it is actually higher than the rate which the competing locality enjoys.

So far as the general language of the resolution is concerned, to the effect that the conditions which prevail in industry should be considered in adjusting freight rates to the end that com-

modities may freely move, this is no more than a general declaration that freight rates shall be adjusted in such way as to provide the country with an adequate system of transportation, and Congress certainly did not intend by this language to create in the commission an economic dictatorship over the various sections of the country with power to kill or make alive. If the commission has the right in a rate adjustment to consider the shift in traffic to a community already paying a higher rate and act upon it as one of the factors in still further widening the rate differential, its power to control the economic development of the country is practically unlimited.

We feel perfectly certain that Congress did not intend to vest such power in the commission. And the fact that the commission seemed to consider that the Hoch-Smith resolution required it to consider or give effect to industrial conditions and the shift of traffic, or at least showed a spirit and purpose in that regard which should be deferred to, is of itself sufficient to invalidate the order complained of.

Burden of Proof

2. Coming to the second ground of invalidity, which is that the commission proceeded upon an erroneous theory of law in holding that the burden was upon the southern carriers to justify the proposed reduction by comparison of the proposed rates with lower maximum rates from another field, we would observe that an error as to the burden of proof in the sense of the duty to go forward with the evidence or to produce the preponderance thereof would not be ground to interfere with the action of the commission, for, of course, we do not attempt to control matters of procedure before it. Here, however, the failure to meet the burden imposed to show certain things, meant adverse action by the commission on the proposed reduction of rates, and it, therefore, becomes a vital question as to whether it was legally necessary that these things be shown.

In the very act which for the first time gave to the commission the power to establish minimum rates and prevent reductions, there was incorporated a provision placing upon carriers the burden of justifying only an *increased* rate. This is of importance not only upon the principle *expressio unius est exclusio alterius*, but also because it expresses a legislative policy favoring low rates. There is all of the difference imaginable between a proposition to raise and one to lower rates. In the former case, the natural presumption is that the carrier will charge what the traffic will bear, and before he is allowed to increase his charges he should show that the increase proposed is justified by cost of operation or other valid criterion. Furthermore, the matters justifying the increase are matters peculiarly within the knowledge of the carrier proposing it. In the case of a reduction of rates, however, the self-interest of the carrier can ordinarily be depended on to guard against too great a reduction; and the reasons for denying the reduction, such as the effect on other carriers, are matters which are not peculiarly within the knowledge of the carrier offering the reduction, and could be better shown by the carriers injuriously affected. Where carriers are willing to reduce rates and thus give the public the benefit of a lower cost of transportation, we think that the burden should be upon those who oppose the reduction to show that it should not be granted, and not upon those who offer it to show that it should be.

In this connection we feel that the interest of the public or of the consumers of coal who will benefit by the reduction in rates offered by the carriers ought not be lost sight of. As said in *Galloway Coal Co.* v. *A. G. S. R. R. Co.* 40 I. C. C. 311, consumers should be given the widest possible markets consistent with justice to the carriers, and carriers, as a matter of traffic policy, may accord competing producing centers located at different distances from common centers of production identical rates. And with respect to the power to fix minimum rates the commission said in the Sugar Cases of 1922, 81 I. C. C. 448, 472, "We believe, however, that this power should be sparingly exercised and only in cases where it clearly appears that its exercise is necessary in order that substantial public injury may be avoided." While the interest of consumers is not a matter, of course, which establishes the burden of proof, it serves to illustrate the unsoundness of the rule applied by the commission. Are the consumers of coal of the northwest to be denied the benefit of a reduction in rates which the carriers are willing to give them merely because the carriers have not carried the burden of showing that these rates are not unreasonably low as compared with other rates which are still lower? Congress could not have intended such a result. The provision placing the burden on the carrier to justify only an *increase* in rates, shows, we think, that it *did not* intend such a result.

But it appears that not only did the commission place upon the carriers the burden of justifying the reduction in rates, but also what we think was the absurd and impossible burden of justifying them by comparison with a lower maximum rates prescribed for carriers from a competing community. The $1.91 rate from Kanawha and the $1.66 rate from Pittsburgh were established as reasonable maximum rates from these respective communities by the commission itself. Later the commission reduced the reasonable maximum from Pittsburgh to $1.46. This, of course, does not mean that the carriers from Pittsburgh may not fix a lower rate but merely that they may not fix a higher one. The commission has not fixed a minimum for either Kanawha or Pittsburgh. Nevertheless, when the southern carriers themselves filed a rate only 20 cents under that fixed as a maximum for Kanawha, the commission has ordered it rescinded merely because the carriers have not shown it reasonable as compared with the maximum rate established from Pittsburgh. We can see how logically a rate might be condemned as too low when compared with a minimum rate from a competing community; but there is certainly no criterion by which it can be thus condemned when compared with a maximum rate. The commission is in the attitude of saying that it will refuse to allow one road to charge 20 cents per ton less than $1.91 because it has refused to allow a road from a competing community to charge more than $1.46. We think that the standard was wrong, as well as the requirement that the road reducing the rates justify the reduction.

The commission, in fixing rates, undoubtedly has the power to require that they be high enough to give the carrier a fair return, that they be not so low as to burden other traffic and that they do not interfere with the earnings of competing carriers, as by being made lower than the rates upon which such carriers can earn a fair return; but there is neither reason nor law for the proposition that rates may be condemned as too low because of their relation to maximum rates from a competing community where they are actually higher than such rates. Where prescribed by the same carrier one rate can be condemned by comparison with another only where shown to be prejudicial. Surely a rate prescribed by one carrier may not be condemned by comparison with rates prescribed by another in the absence of such showing. And, *a fortiori*, the public in such case is not to be denied the benefit of a reduction in rates.

Section 15-A

3. The third ground upon which we think the order of the commission invalid is that it proceeded upon an erroneous theory of law in holding that the burden was upon the carriers to justify the proposed reduction under Section 15 (a) (2) of the Transportation Act of 1920 and the Hoch-Smith resolution. We have already adverted to the error of this as regards the Hoch-Smith resolution. We think it is equally erroneous as regards Section 15 (a) (2) of the Transportation Act.

We feel sure that no proper interpretation of the act requires that before a carrier can reduce a particular rate to the public it must show how the net income of all the carriers in that part of the United States will be affected by the reduction. The act as construed gives the commission power to fix a minimum rate to prevent rate wars and to prevent the burdening of other traffic or the impairment of earnings either of the road itself or competing roads; but certainly this was as far as Congress intended to go. The railroads are still private property and are subject to private management. When one of them proposes a reduction of rates which is not shown to unduly impair its own earnings, burden other traffic or injure its competitors, it is nothing short of absurd to say that it must justify the reduction with reference to its effect on the net income of all the carriers in the eastern part of the United States.

The absurdity of attempting to deny a reduction on the general ground that the net operating income of all the carriers in the group will be affected is well illustrated in this case. The commission has lowered the rates from the northern field by 20 cents per ton. If this results in relieving the distress in the northern field, it means that traffic will be diverted thereto from the southern field. Every ton thus diverted will pay 45 cents per ton less than if hauled from the southern field and the income of the carriers will be reduced by that amount. If, however, the southern rate is also reduced twenty cents, and the traffic is not diverted, the income of the carriers is reduced only 20 instead of 45 cents. How much would be diverted if the reduction by the southern carriers is not allowed, how much loss this would entail on the southern carriers as compared with gain by the northern carriers, how much if anything the net income of the carriers would be in-

creased or diminished, are questions which no one could estimate with even a hope of approximate correctness. We cannot believe that Congress intended that the advantages of a reduction in rates should be made to depend upon the carrier showing anything so impossible of proof as this. When a reduction such as that involved here is offered, if it be shown that it will unduly impair the earnings of the carriers proposing it or will injure competing carriers, that it will unduly burden other traffic or will lead to a rate war, then the commission may forbid it in the exercise of its power to fix minimum rates, but in the absence of such showing it seems clear that the commission has no power to forbid it under the general grant of power contained in Section 15 (a) (2).

It is contended in behalf of the commission that the court is without jurisdiction to grant the relief prayed for two reasons: (1) because the order is in effect one denying relief, the enforcement of which cannot be enjoined, and (2) because complainants are not hurt by the order as it affects the railroads and not them. We think that neither of these positions is well taken. The order complained of is not a mere negative order or one denying relief. It is a positive order to cancel the schedules filed which will put into effect the reduced rates. If they are not cancelled as directed by the order, the rates prescribed by them automatically become the rates applicable on the traffic to which they are directed. To say that complainants are not hurt by the order because it is addressed to the railroad companies is to close one's eyes to the real situation. The complainant coal producers are served by the carriers. Their only means of reaching the lake ports is over the lines of the carriers and at such rates as they may charge. If, therefore, the order of the commission is carried out, these producers must pay 20 cents per ton more on every ton of coal shipped than they will be required to pay if the reduced rates prescribed in the schedules are allowed to become effective.

Here the order is an affirmative one. It directs the cancellation of the rate schedules which if not cancelled will prescribe the applicable rate to the commerce in question. In directing their cancellation the commission exceeded its authority and acted upon erroneous legal principles. If the enforcement of the order is enjoined, the effect is not to grant relief which the commission has denied, but to prevent it from taking action which it had no legal right to take.

In the case at bar the complaining shippers are directly injured by the order complained of. If carried out, it means that they must pay 20 cents additional on every ton of coal shipped to the lake ports. This means the loss of millions of dollars to the producers of the southern field and thousands to each of the individual complainants.

Conclusion

To conclude, therefore, we think that in entering the order complained of the commission exceeded its powers and proceeded upon erroneous theories of law. We think that its action was essentially an effort to equalize industrial conditions or to offset economic advantages by rate adjustments, not warranted by anything contained in the Transportation Act of 1920 or in the Hoch-Smith resolution. We think that it erred, as a matter of law, in holding that the burden was upon carriers, who had filed schedules reducing rates, to show that the rates as reduced were not unreasonably low as compared with lower maximum rates prescribed for shipments from another field, and in holding that the schedules should be cancelled for failure of the carriers to sustain this burden. We think that there was error of law also in the holding that the burden was upon the carriers proposing a reduction of rates to justify the reduction under Section 15 (a) (2) of the Transportation Act of 1920 or the Hoch-Smith resolution. For these reasons we think that the order complained of is void; and, as it is affirmative in its nature commanding the cancellation of rate schedules which will become effective if not cancelled, and as complainants will be injured if its enforcement is not enjoined, we have no doubt of the power of the court to grant the injunction prayed. The effect of the injunction will be, as we have already said, to restore the differential which the commission itself established and which it approved before it reached the conclusion that it was its duty to consider the industrial conditions prevailing in the northern field and the shift of traffic resulting therefrom. It will result in a reduction of rates which the carriers are willing to make and will enable the public to obtain the benefit of a lower cost of transportation. It cannot injure the carriers which serve the competing northern field, because the maximum rate which they can charge is lower than the reduced rates from the southern field. In a word, its only effect will be to prevent the commission from interfering with industrial conditions in the localities affected and from forbidding a reduction of rates which will preserve the differential that has prevailed for many years. The injunction prayed will accordingly be granted.

The Supreme Court of the United States on April 17 denied a petition by counsel for the coal operators of the "northern" district for an order staying the injunction issued by the lower court, so as to prevent the tariffs reducing the rates from the southern district from going into effect pending an appeal of the case. Counsel first appeared before Chief Justice Taft at his residence and later at his request presented argument before the court in open session. The commission declined to join in the request for a stay although counsel for the Pennsylvania, New York Central and Baltimore & Ohio said they would be willing to do so.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading during the week ended April 7 amounted to 919,296 cars, a decrease as compared with loading in the corresponding week of 1927 of 34,611 cars, and as compared with 1926, a decrease of 10,047 cars. Grain and grain products was the only commodity classification in which loading was greater than a year ago. Coal loading amounted to 134,163 cars, a decrease of 18,304 cars from the corresponding week of last year. Loading in the Southwestern district was larger than last year but in other districts the totals were smaller. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, April 7, 1928

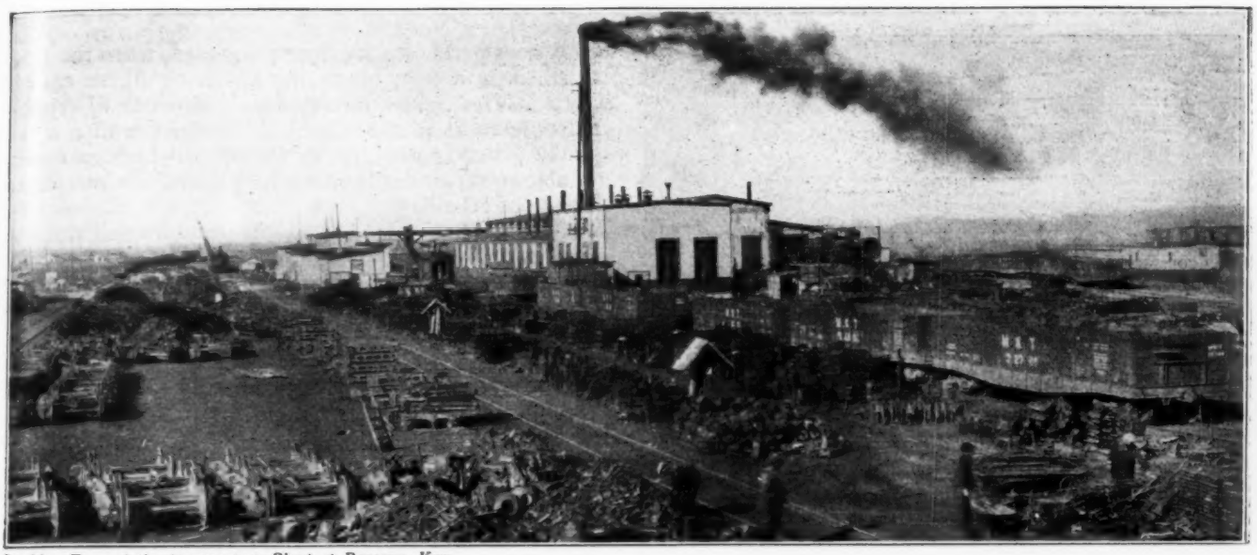
Districts	1928	1927	1926
Eastern	218,162	221,427	227,080
Allegheny	189,645	202,242	191,895
Pocahontas	47,858	57,195	47,550
Southern	155,654	161,873	155,069
Northwestern	111,209	113,985	113,442
Central Western	124,074	126,504	124,347
Southwestern	72,694	70,681	69,960
Total Western Districts	307,977	311,170	307,749
Total All Roads	919,296	953,907	929,343
Commodities			
Grain and Grain Products	39,370	35,434	35,871
Live Stock	23,340	26,437	24,397
Coal	134,163	152,467	164,392
Coke	9,813	11,863	12,674
Forest Products	65,684	69,114	74,104
Ore	9,144	11,627	13,251
Merchandise L. C. L.	263,234	266,516	264,376
Miscellaneous	374,548	380,449	340,278
April 7	919,296	953,907	929,343
March 31	948,427	986,462	928,303
March 24	950,428	1,003,536	967,945
March 17	942,086	1,001,932	977,018
March 10	951,553	1,000,754	967,425
Cumulative total, 14 weeks	12,710,566	13,495,032	13,099,071

The freight car surplus averaged 344,502 cars during the period ended March 31, as compared with 345,272 cars on March 23. The total included 171,481 coal, 125,627 box, 24,654 stock and 11,599 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended April 7 totalled 56,585 cars, a decrease from the previous week of 4,813 cars, and a decrease from the same week last year of 3,514 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
April 7, 1928	56,585	41,808
March 31, 1928	61,398	41,909
March 24, 1928	64,374	42,151
April 9, 1927	60,099	36,682
Cumulative Totals for Canada		
April 7, 1928	874,770	557,890
April 9, 1927	850,855	547,272
April 10, 1926	766,411	520,753



Looking Toward the Reclamation Plant at Parsons, Kan.

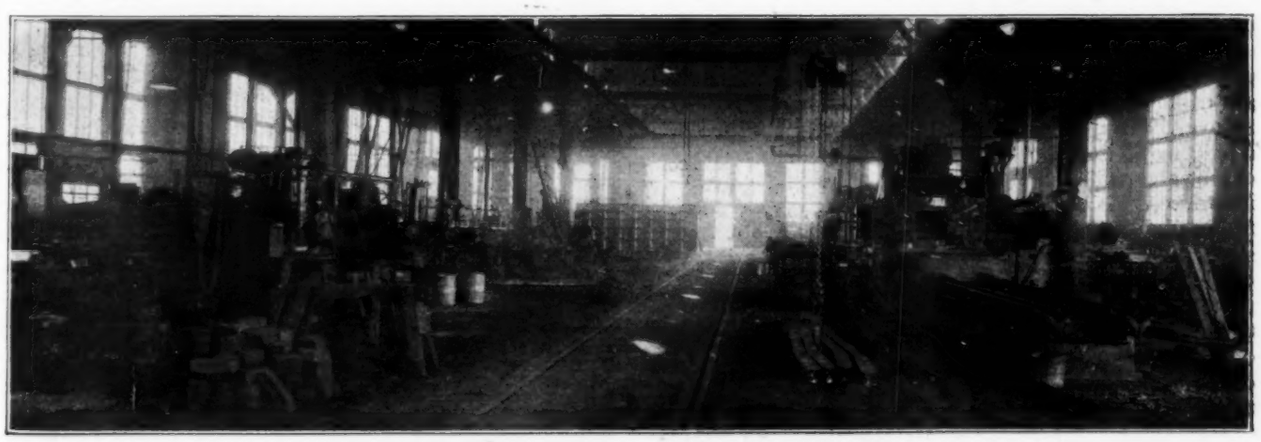
M.-K.-T. Saves $250,000 Yearly from Reclamation

Operations on "production basis"—Cost records kept—Output inspected

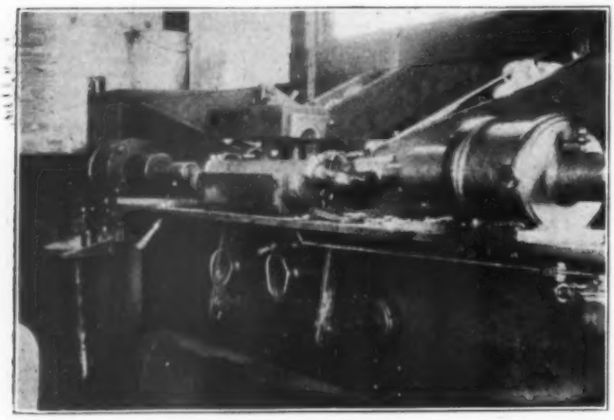
AT PARSONS, Kansas, the Missouri-Kansas-Texas, has one of the largest reclamation plants in the country in point of tonnage of production. This plant is operated under the direction of the purchasing and stores department for the purpose of returning to use in the same or another form materials received as scrap. Some $247,000 has been expended for the buildings and equipment devoted to this reclamation, and a force of 135 mechanics, apprentices, helpers and laborers is engaged in the operations. This is apart from the clerical and supervisory forces and comprises an organization separate from that engaged in handling scrap. The principal output consists of car and locomotive forgings, of which 894 tons were produced last year and the plant is credited with a saving in the cost of material reclaimed for service of $250,000, not counting a considerable saving also made in special items, such as cattle guards made of old flues, sign posts made of old flues cast in concrete footings, and pressed steel engine pilots made of boiler plate. It is estimated that 20 per cent of the miscellaneous scrap received in the system yard at Parsons is reclaimed for further use by this plant.

The facilities consist of a main shop building, 80 ft. by 340 ft., divided into blacksmith, machine, welding and carpenter shops; a tin shop building, 60 ft. by 100 ft.; a bolt shop, 40 ft. by 80 ft.; a paint shop, 20 ft. by 40 ft.; a hose mounting building, 20 ft. by 60 ft.; a power house, 34 ft. by 67 ft.; and an office and storeroom, 40 ft. by 80 ft.

Operations in the blacksmith shop consist of repairs to car and locomotive forgings, brake beams, coupler yokes,



A Portion of the Machine Shop Where the Machines Are Motor Driven



Ingenious Device Used for Mounting Air Hose

arch bars, rail clips, rail braces, bolts, pins, structural steel specialties, track and hand tools, bars, chains, hooks, links, wrecker equipment, locomotive pilots, pilot bracing, pile butts and shoes, frogs, switches, guard rails and other articles requiring general blacksmith work. The equipment for this work consists of one 1,500-lb. and one 750-lb. steam hammer, a large double-door furnace, 10 forging and welding furnaces, 4 hand forges, 4 punches and shears, a bolt shear, an angle and rod shear, 5 air hammers, a rail bender, 2 forging machines, a 300-lb. and a 150-lb. Bradley hammer, a brake beam testing machine, an alligator shear, a cold cut saw, and an emery grinder.

A feature of this shop's work is the large quantity of articles for use on cars or track (coupler yokes, grate irons, and rail braces, for example) which are shaped from old iron, also the practice of making all forgings by dies specially designed to speed production and secure uniformity in the output. Thus coupler yokes, which are made from old axles, are shaped at the rate of 70 an hour by the use of a die which bends the heated bar U shaped at one stroke of the press to which the die is attached, while one motion of a steam hammer shapes a rail brace and two movements of a press converts a heated rod into a grab iron. A Buffalo blower produces the blast air for the forges and furnaces in this shop and oil is used for fuel in all furnaces; while the machines are all motor driven except the air hammers.

Make Packing Rings

The machine shop operations include the planing and drilling of frogs switches and guard rails, and the repairing of angle and cutout cocks, retaining valves, track, car and engine jacks, switch stands, track drills, pumps, gas engines, tram car wheels and axles, draft gears, etc., recovered from the scrap. In addition to the general repair work this shop also makes all locomotive steam chest valve and packing rings used on the system where it can be done on a production basis at less expense to the road than where each shop is faced with the necessity of filling its own requirements from rough castings carried at the local store houses.

In this shop are two planers, three lathes, two shapers, two boring mills, a nine-spindle angle cock grinding machine, a magnet chuck, a jack testing machine, two radial drills, three Baker drills, two emery grinders, two tool and saw grinders, a centering machine and numerous air drills, air hammers, and hand tools, all the machines being motor driven.

A distinctive feature of the frog and switch work done is the withholding of all drilling work until the component parts of a frog are assembled, when the frog is drilled as a unit, producing a driving fit, so called, which insures tighter fabrication. The work of repairing angle cocks is also distinctive in the use of a nine-spindle grinding machine by means of which two men are able to repair angle cocks fully tested for service at the rate of 80 a day.

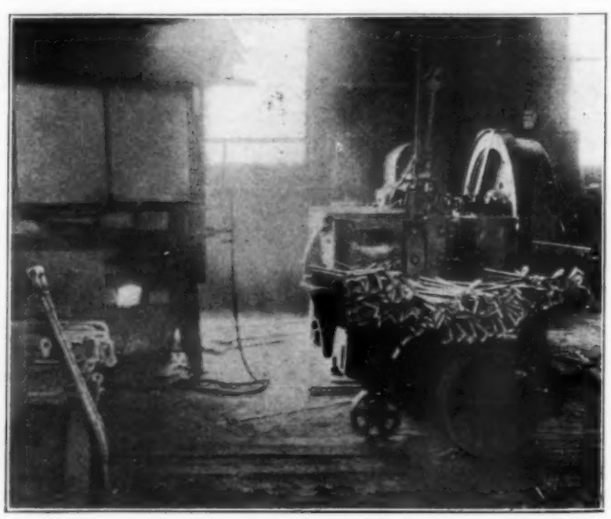
In the welding shop, bolsters, truck sides and frames, couplers, knuckles, knuckle locks and other similar articles are recovered in accordance with A. R. A. rules. Here frogs and switch points are also built up and numerous other welding operations are carried on by both the acetylene and electric processes. Two electric welding machines, a preheating forge, a small annealing furnace and 10 gas welding stations are provided for this purpose.

Quick Hose Mounting

In the carpenter shop, operations extend to the repair of hand and push cars, warehouse trucks, ice and mail carts, water coolers, tool and record boxes, dollies, runboards, special cars for the bridge and track departments, also to the reclamation of air, signal and steam hose fittings and their mounting, and to the repair of crossing roadway signs and bulletin boards of all descriptions. This carpenter shop is equipped with a sizer, planer and jointer, a mortiser, rip saw, band saw, cutoff saw, saw filing and brazing machine, four air motors, and a hose mounting and dismantling machine, all of which, except the hose machine, are motor driven.

The hose mounting is a particularly interesting operation of this shop. Most railroads have improvised devices to facilitate the mounting of hose but the Katy's method simplifies the usual operation. Two air cylinders are fastened to a bench, end to end, and a vise installed between them. The new hose is dropped in the vise and air applied to close the jaws up on it. The fittings are inserted loosely into the ends of the hose and the hose clamps attached, following which an application of air drives the fittings home. At the same time other levers compress the hose clamps and force the bolts into place. The operator then has only to apply the nuts to the clamp bolts and the hose is ready for testing for leaks.

The tin shop work includes the reclaiming of globe, angle and gate valves, triple valve parts, pipe fittings, flexible joints, switch lamps, markers and classification lamps. Among other things, it produces from scrap



Grab Irons Are Made from Old Bar Iron

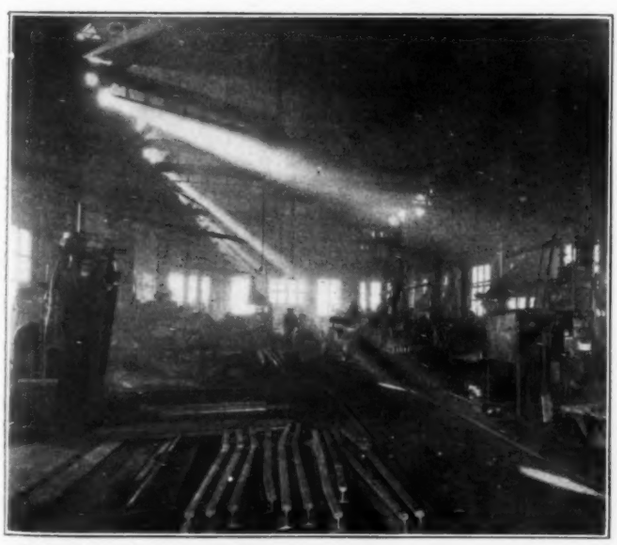
sheet steel and angle iron an efficient and unique flexible dust guard for track scales. It is equipped with a cornice brake, a large roll, three small rolls, two power shears, a foot shear, stamping machine, stamping and drawing press, power groover, two power burrs, a power beading machine, a power setting machine, a power wiring machine, a wire cutter(foot power), a ring shear, two circle shears, three power double seaming machines, a punch, a power elbow machine and numerous hand bench tools, also air motors and cutters for refacing and grinding globe and angle valves, and bench tools and dies for the pipe shop. The production machines in this shop are all motor driven and so arranged that each succeeding operation is taken from one machine to another without retracing steps. An article in process of manufacture is continually on the move in one direction until completed for shipment.

In the bolt house, all bolts are threaded and bolts and rods are straightened for making bolts, salvage rods being used for all bolts produced at the plant. Oil boxes, brake cylinders and reservoirs are also repaired in this shop, the equipment comprising six bolt cutters, one six-spindle nut tapper, one rattler, two bolt shears, one oil pump and tank, and four motor driven hammers used in straightening bolts and rods.

Motor Driven Machines

By far the greater portion of the equipment was new when installed during 1920. Prior to that time practically all equipment was old style, having been released from other departments. The reclamation plant was destroyed by fire during 1920, and the importance of reclamation having been recognized, the main shop was increased from 80 ft. by 240 ft. to 80 ft. by 340 ft., and equipped with new motor driven machinery throughout. It also includes a monorail overhead carrying system to expedite the handling of material to and from the various machines.

The plant is operated on a production basis where possible, an arrangement requiring many jigs and dies to expedite and increase the output, and no operation is performed without a die or templet to insure uniformity of all products. Dies or jigs are not employed in the making of any one special item of infrequent use, but where a quantity is necessary dies and jigs are considered before production is started. Gang punches made in the tool room are attached to regular punches and shears where from two to seven holes are punched in one operation. Dies are also attached to the punch press for stamping small parts for tinware from scrap cuttings, such as kettle ears, oil can spouts, bosses, etc. These and other similar attachments are added to machines where practical to increase efficiency.



Material Handling in the Plant Is Facilitated by an Overhead Trolley System and Jib Cranes

Making Coupler Yokes from Old Axles

Keep Cost Records

The actual labor and material cost of every article produced is maintained by the foreman, as taken from daily time cards. It is then recorded in the office for timekeeping and the monthly output statement, to which is added the overhead expense, showing on the statement the actual cost of each article as compared with the cost new. This statement is prepared as follows:

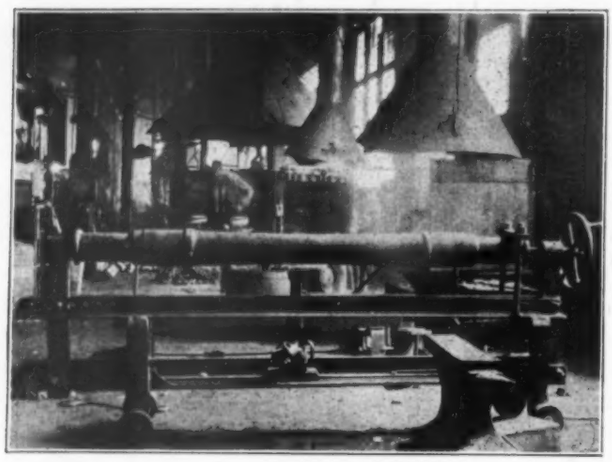
Description	Shop Order	Quantity	New Mat'l	Scrap Mat'l	Labor	Oxweld
Fuel	Other Exp.	Total Recovery Cost		Current Market Price		Credit Opr. Exp.

Before accepting any article for reclamation, the plant determines first the quantity required for use each month; second, the possibility of acquiring scrap material; third, the cost of reclaiming, including labor, material and overhead; and, fourth, the price new. If, through reclamation, a reasonable saving can be effected, the article will be accepted; otherwise, it will be purchased. In this way no article will be accepted (other than at times of emergency) where a saving cannot be made consistent with the service rendered.

Test All Materials

A reclamation committee, consisting of the general storekeeper, engineer, maintenance of way, superintendent of the car department and reclamation plant superintendent, review the output of the plant periodically and pass upon the finished items to determine their fitness for the use intended as well as their possible service as compared with purchased articles of the same kind. This insures the continuation of only such reclamation as may be of real benefit to the railroad. The

output of the reclamation plant, moreover, receives the same attention by the inspection department as would be accorded to similar items purchased from the manufacturers. Items such as brake beams, requiring check test for capacity, are tested on a special machine before they are released from the plant.



The Device Used for Straightening Axles

The plant is operated under the immediate jurisdiction of G. W. Lieber, superintendent of reclamation.

Railroad Asks Dismissal of Complaint as to Firebox Doors

WASHINGTON, D. C.

THE American Railway Association, on behalf of its members, has filed with the Interstate Commerce Commission an answer to the complaint filed by the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen which asked the commission to require that locomotives be equipped with mechanical firebox doors. Asking that the complaint be dismissed, the railroads say that, while a device for the mechanical operation of the doors to fireboxes may in some cases be desirable and constitute an improvement in operating methods, it is not of such controlling and commanding importance in the operation of locomotive engines as that the failure to install it in any particular instance constitutes a violation of the Boiler Inspection Act or justifies an order of the commission requiring its installation. "Locomotive engines can be, and are, properly and safely operated without this device," they say and "in fact, such devices would not be appropriate or practicable at all on certain types or classes of engines.

Other Safety Measures

"Aside from these special cases, however, these respondents further show that, under conditions where the operating revenues of the carriers are strictly limited by law, where the available financial resources of the several carriers greatly vary, where there are many directions in which expenditures to promote safety of operation may be made, such as heavier rails and better roadbeds, steel and steel underframe cars, block signals, automatic train control, elimination or protection of grade crossings, it becomes necessary, if everything that is desirable cannot be done at once, to exercise a wise discretion in the selection of what shall be given precedence. Some of the respondents are in a financial condition in which their managements have felt justified in installing mechanical devices for the operaton of doors to fireboxes, and they have done so; while others could not install them without putting aside other safety measures which, in the exercise of sound and fair managerial discretion, are deemed, and which are in fact, of greater importance to the public. Under these circumstances, in the absence of bad faith and neglect of a plain duty, the application of available funds to safety purposes should be left to the honest discretion of the several managements, and no one aspect of the matter should be singled out by this honorable commission for preferential treatment, as would be done if a mandatory order were, as prayed, entered in this case. The record of the carriers, extending over a period of years, as to measures of safety and the prevention of casualties has been such as to justify the commission in leaving the matter herein complained of to the sound discretion of the several managements, unless in any particular case it can be shown that a carrier is exercising such discretion unfairly or improperly and that an order of the commission is necessary to force such carrier to perform a plain duty.

"It is respectfully submitted that such is not the case in the matter here complained of and that there is no justification for a general order such as is here prayed for."

Ewing Galloway

A. T. & S. F. Station, Oklahoma City

Street Traffic Lights at Railroad Crossings Expedite Movements

Standard city type of signals installed by Santa Fe at ten crossings in Beaumont, Tex.

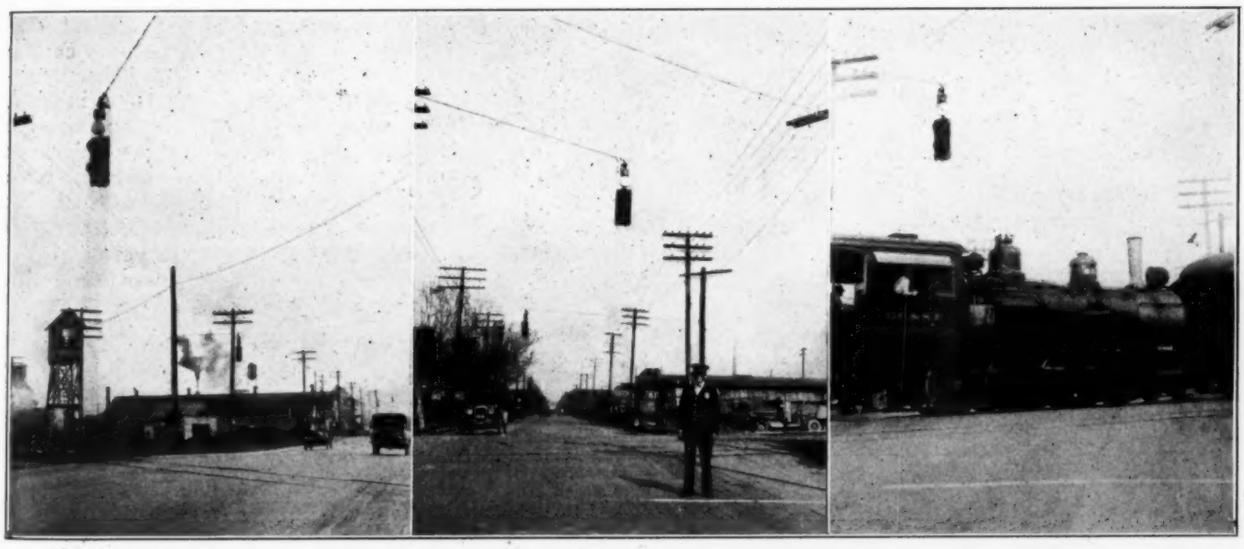
IN Beaumont, Tex. the Gulf, Colorado & Santa Fe has co-operated with the city authorities in the installation, at 10 street crossings of the railroad tracks, of traffic type light signals of the same design as are used at the principal street intersections throughout the city. One of the main thoroughfares and highways entering the city, crosses two legs of a wye near the passenger station of the Santa Fe. In addition to the passenger train movements in and out of this dead-end station, numerous switching movements are made between the yards, the industrial districts, and the wharfs, with the result that from 80 to 100 train movements are made over these crossings each day.

As a protection for street traffic, the city authorities had ordered all trains to stop for each street and a brakeman to proceed ahead to flag the crossing. Compliance with this rule not only introduced numerous train stops and delayed trains, but the trains moved so slowly through this area that the street traffic was delayed unnecessarily. These flagmen also had difficulty in stopping street traffic because automobile drivers would continue to cross the tracks with a train approaching dangerously close, in several cases resulting in accidents.

On account of the complicated track layout and variations in the switching movements, automatic highway crossing signals controlled by track circuits were not considered practicable. Conditions were growing worse, the delays were undesirable for the railroad, and the protection was unsatisfactory for the public. As a result there was some agitation for grade separation, which would have involved a large expense that was not justified by the traffic and slow train movements involved. After giving the problem serious study the division superintendent, in co-operation with the signal engineer, evolved the idea of installing at each crossing two traffic light signals of the same type as used at the principal street crossings throughout the city.

After consultation with the city manager, the mayor, and the city attorney, the city ordinance with reference to traffic lights was revised to include the protection of railroad crossings, the wording of this revised paragraph being as follows:

"All pedestrians and operators, or persons in charge of all vehicles, shall observe the following traffic signals when in operation, whether the same be displayed by the traffic signal system of the city of Beaumont or by any railroad company placing traffic signal lights at its crossings when said traffic signal lights are placed on said crossings in conformity with the orders of and under the direction of the city of Beaumont:"



Looking South on Mariposa Street, Control Tower at Left — **An Officer on Duty at Crockett Street Crossing** — **Train Crossing Mariposa Street Which Carries Heavy Traffic**

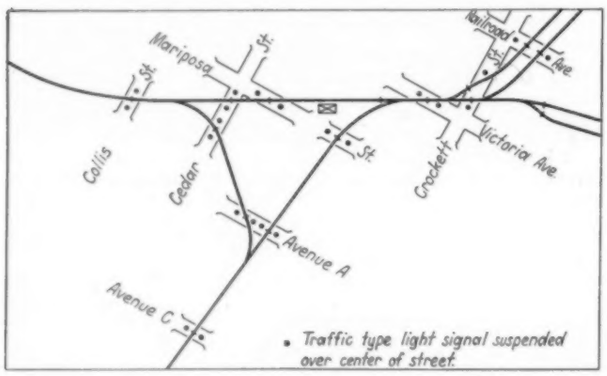
All Signals Controlled from One Tower

After receiving authority from the city, the signal department of the railroad was called upon to design a system of control for the signals and to install the system as soon as possible. The control was concentrated in a small tower built near the Mariposa street crossing. The two signals at each crossing are controlled by a separate knife switch in the tower. These switches are mounted neatly in a row and are marked distinctly to correspond with the layout. Although centrally located, not all of the crossings can be seen readily from the tower. Therefore an illuminated track diagram was constructed and placed over the switches in the tower, the lights in the diagram being controlled by track cir-

cuits so that the towerman knows the location of each train.

When a train approaches a crossing, the towerman operates the switch which causes the red unit in the signal to be illuminated and the green light to be extinguished. A bell on the signal starts to ring as soon as he throws the switch and continues to ring as long as the signal indicates red. As the train clears the crossing, the towerman throws the switch to the opposite position; the bell stops ringing and the signal indication is changed from red to green. The track circuits for the control of the illuminated track diagram end in the center of each street. Therefore, the towerman knows when a train passes off of a crossing, regardless of whether he can see the street or not.

The signals used for this installation are Crouse-Hinds regular traffic signals with a 50-watt bulb in each



A Traffic Light Is Suspended Over the Center of the Street on Each Side of the Track at Ten Crossings

light unit. The power for the signals is purchased locally at 110-volts alternating current. Caustic soda primary batteries and regular d-c. signaling relays are used for the track circuit for controlling the diagram lights.

Cost of Installation and Operation

The installation of these signals, including the control tower and equipment, cost an average of $669 per crossing for the 10 crossings. Two men are employed for the operation of these signals, at $74 per month each, one man being on duty from 6 a.m. until 2 p.m. and the second man from 2 p.m. until 10 p.m. No regular trains are operated in this territory after 10 p.m. and in the case of a special switching movement to the wharf, the brakemen flag the crossing.

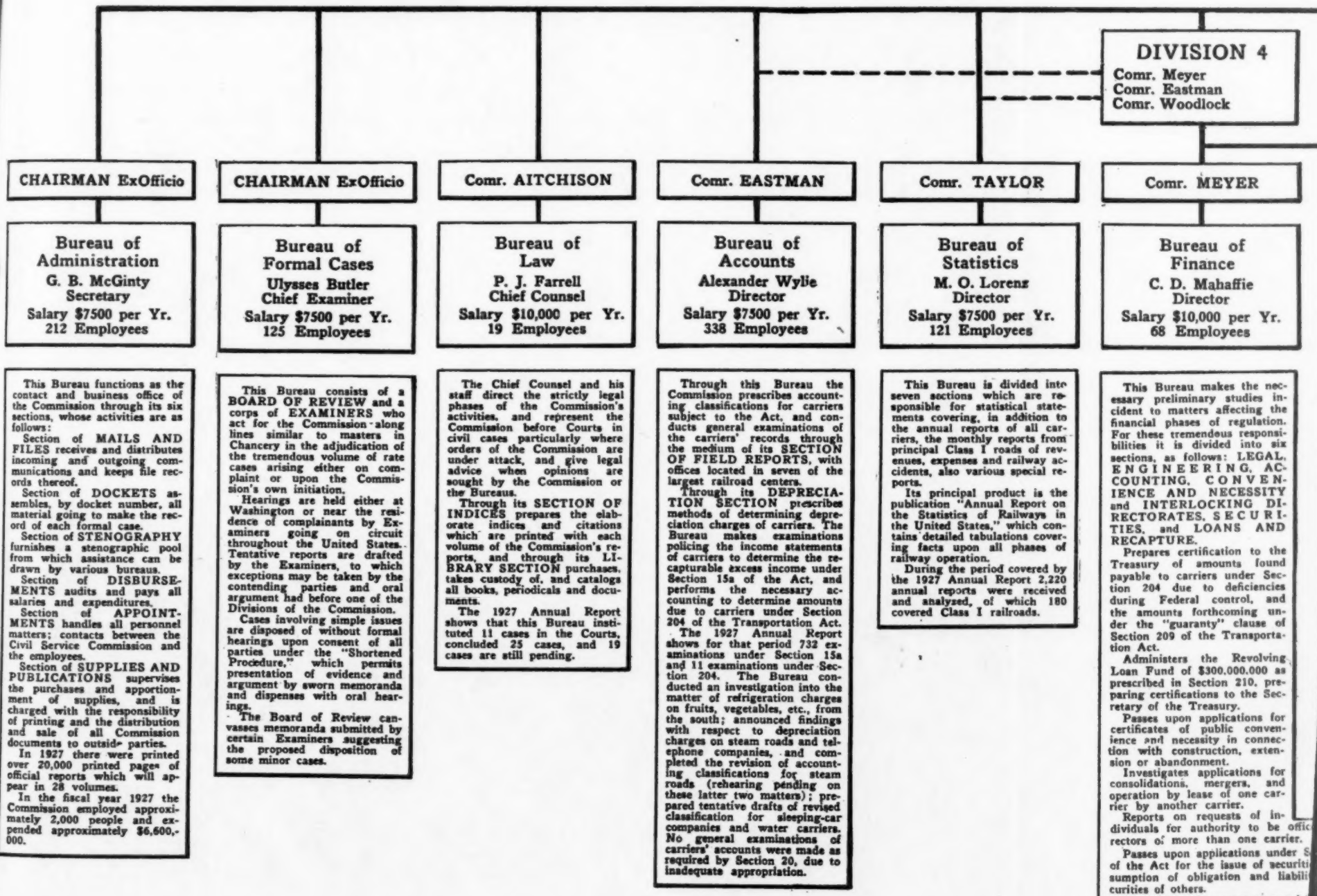
When the men change shifts at 2 p.m. one man checks each light to see that it is not burned out while the other man operates the switches. These signals are inspected by the city electrical forces the same as other traffic lights throughout the city and they replace any lamps giving indication of failure. The control equipment, track circuits and illuminated track diagram are maintained by the regular signal maintainer for this territory.

After observation of the effect of these signals the city abolished the requirement that trains stop at each crossing or send a flagman to precede each train. Train movements have therefore been speeded up to about 15 m.p.h. over these crossings, which clears the crossings much quicker and thus reduces the delay to street traffic.

The signals are observed strictly by the automobile drivers and no accidents have occurred at these crossings since the signals were placed in service in July, 1927. The observance of these signals is checked by a police officer for a certain number of hours each week during his regular tour of duty. Some violations were noted and a few arrests made but it is reported that these signals are observed as well as or better than the traffic lights in cities throughout the country.

* * * *

Aerial View of New Shops and Terminal of the International Railways of Central America at San Salvador, C. A.


IN
*C
Clyde
Claude
Joseph
Richar
Frank
Thoma
Baltha
* John
Ernest
Ezra E
John J
DIVISION 4
Comr. Meyer
Comr. Eastman
Comr. Woodlock
CHAIRMAN ExOfficio
CHAIRMAN ExOfficio
Comr. AITCHISON
Comr. EASTMAN
Comr. TAYLOR
Comr. MEYER
Bureau of Administration
G. B. McGinty
Secretary
Salary $7500 per Yr.
212 Employees
Bureau of Formal Cases
Ulysses Butler
Chief Examiner
Salary $7500 per Yr.
125 Employees
Bureau of Law
P. J. Farrell
Chief Counsel
Salary $10,000 per Yr.
19 Employees
Bureau of Accounts
Alexander Wylie
Director
Salary $7500 per Yr.
338 Employees
Bureau of Statistics
M. O. Lorenz
Director
Salary $7500 per Yr.
121 Employees
Bureau of Finance
C. D. Mahaffie
Director
Salary $10,000 per Yr.
68 Employees
This Bureau functions as the contact and business office of the Commission through its six sections, whose activities are as follows:
Section of MAILS AND FILES receives and distributes incoming and outgoing communications and keeps file records thereof.
Section of DOCKETS assembles, by docket number, all material going to make the record of each formal case.
Section of STENOGRAPHY furnishes a stenographic pool from which assistance can be drawn by various bureaus.
Section of DISBURSEMENTS audits and pays all salaries and expenditures.
Section of APPOINTMENTS handles all personnel matters; contacts between the Civil Service Commission and the employees.
Section of SUPPLIES AND PUBLICATIONS supervises the purchases and apportionment of supplies, and is charged with the responsibility of printing and the distribution and sale of all Commission documents to outside parties.
In 1927 there were printed over 20,000 printed pages of official reports which will appear in 28 volumes.
In the fiscal year 1927 the Commission employed approximately 2,000 people and expended approximately $6,600,000.
This Bureau consists of a BOARD OF REVIEW and a corps of EXAMINERS who act for the Commission along lines similar to masters in Chancery in the adjudication of the tremendous volume of rate cases arising either on complaint or upon the Commission's own initiation.
Hearings are held either at Washington or near the residence of complainants by Examiners going on circuit throughout the United States. Tentative reports are drafted by the Examiners, to which exceptions may be taken by the contending parties and oral argument had before one of the Divisions of the Commission.
Cases involving simple issues are disposed of without formal hearings upon consent of all parties under the "Shortened Procedure," which permits presentation of evidence and argument by sworn memoranda and dispenses with oral hearings.
The Board of Review canvasses memoranda submitted by certain Examiners suggesting the proposed disposition of some minor cases.
The Chief Counsel and his staff direct the strictly legal phases of the Commission's activities, and represent the Commission before Courts in civil cases particularly where orders of the Commission are under attack, and give legal advice when opinions are sought by the Commission or the Bureaus.
Through its SECTION OF INDICES prepares the elaborate indices and citations which are printed with each volume of the Commission's reports, and through its LIBRARY SECTION purchases, takes custody of, and catalogs all books, periodicals and documents.
The 1927 Annual Report shows that this Bureau instituted 11 cases in the Courts, concluded 25 cases, and 19 cases are still pending.
Through this Bureau the Commission prescribes accounting classifications for carriers subject to the Act, and conducts general examinations of the carriers' records through the medium of its SECTION OF FIELD REPORTS, with offices located in seven of the largest railroad centers.
Through its DEPRECIATION SECTION prescribes methods of determining depreciation charges of carriers. The Bureau makes examinations policing the income statements of carriers to determine the recapturable excess income under Section 15a of the Act, and performs the necessary accounting to determine amounts due to carriers under Section 204 of the Transportation Act.
The 1927 Annual Report shows for that period 732 examinations under Section 15a and 11 examinations under Section 204. The Bureau conducted an investigation into the matter of refrigeration charges on fruits, vegetables, etc., from the south; announced findings with respect to depreciation charges on steam roads and telephone companies, and completed the revision of accounting classifications for steam roads (rehearing pending on these latter two matters); prepared tentative drafts of revised classification for sleeping-car companies and water carriers. No general examinations of carriers' accounts were made as required by Section 20, due to inadequate appropriation.
This Bureau is divided into seven sections which are responsible for statistical statements covering, in addition to the annual reports of all carriers, the monthly reports from principal Class I roads of revenues, expenses and railway accidents, also various special reports.
Its principal product is the publication "Annual Report on the Statistics of Railways in the United States," which contains detailed tabulations covering facts upon all phases of railway operation.
During the period covered by the 1927 Annual Report 2,220 annual reports were received and analyzed, of which 180 covered Class I railroads.
This Bureau makes the necessary preliminary studies incident to matters affecting the financial phases of regulation. For these tremendous responsibilities it is divided into six sections, as follows: LEGAL, ENGINEERING, ACCOUNTING, CONVENIENCE AND NECESSITY and INTERLOCKING DIRECTORATES, SECURITIES, and LOANS AND RECAPTURE.
Prepares certification to the Treasury of amounts found payable to carriers under Section 204 due to deficiencies during Federal control, and the amounts forthcoming under the "guaranty" clause of Section 209 of the Transportation Act.
Administers the Revolving Loan Fund of $300,000,000 as prescribed in Section 210, preparing certifications to the Secretary of the Treasury.
Passes upon applications for certificates of public convenience and necessity in connection with construction, extension or abandonment.
Investigates applications for consolidations, mergers, and operation by lease of one carrier by another carrier.
Reports on requests of individuals for authority to be offic
rectors of more than one carrier.
Passes upon applications under S
of the Act for the issue of securiti
sumption of obligation and liabili
curities of others.
Administers the recapture provisi
tion 15a, holding hearings to det
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come and administering the inve
use of the Contingent Fund.
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(*Railway Age*, April 21, 1928)

INTERSTATE COMMERCE COMMISSION

*Chairman by Rotation	Began→Present Term←Expires	
Clyde B. Aitchison	Jan. 1921	Dec. 1928
Claude R. Porter	Jan. 1928	Dec. 1928
Joseph B. Eastman	Jan. 1922	Dec. 1929
Richard V. Taylor	Jan. 1926	Dec. 1929
Frank McManamy	Jan. 1923	Dec. 1930
Thomas F. Woodlock	Apr. 1925	Dec. 1930
Balthasar H. Meyer	Jan. 1924	Dec. 1931
*Johnston B. Campbell	Jan. 1924	Dec. 1931
Ernest I. Lewis	Jan. 1925	Dec. 1932
Ezra Brainerd, Jr.	Feb. 1927	Dec. 1933
John J. Esch	Jan. 1928 Unconfirmed	Mar.1 1928

Salaries — $12,000 Per Annum

DIVISION 4

Comr. Meyer
Comr. Eastman
Comr. Woodlock

DIVISION 1

Comr. Meyer
Comr. Aitchison
Comr. Lewis

DIVISION 2

Comr. Campbell
Comr. McManamy
Comr. Brainerd

DIVIS

Comr. Aitchi
Comr. Taylo
Comr. Porte

OR

Comr. MEYER

Comr. WOODLOCK

Comr. LEWIS

Comr. CAMPBELL

Comr. AIT

Bureau of Finance

C. D. Mahaffie
Director
Salary $10,000 per Yr.
68 Employees

This Bureau makes the necessary preliminary studies incident to matters affecting the financial phases of regulation. For these tremendous responsibilities it is divided into six sections, as follows: LEGAL, ENGINEERING, ACCOUNTING, CONVENIENCE AND NECESSITY and INTERLOCKING DIRECTORATES, SECURITIES, and LOANS AND RECAPTURE.

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Passes upon applications for certificates of public convenience and necessity in connection with construction, extension or abandonment.

Investigates applications for consolidations, mergers, and operation by lease of one carrier by another carrier.

Reports on requests of individuals for authority to be officers or directors of more than one carrier.

Passes upon applications under Section 20a of the Act for the issue of securities and assumption of obligation and liability for securities of others.

Administers the recapture provision of Section 15a, holding hearings to determine the amount of excess net railway operating income and administering the investment and use of the Contingent Fund.

Bureau of Informal Cases

Arja Morgan
Chief
Salary $5200 per Yr.
40 Employees

This Bureau serves as an intermediary between complainants and railroad companies in adjusting complaints brought by shippers and passengers without resort to the formal process of litigation, handling all matters through the medium of correspondence. Decisions of the INFORMAL COMPLAINT SECTION of this Bureau have no binding effect upon parties, who may insist on formal hearings. However, because of the saving of costs incident to formal hearings parties often accept these decisions as binding upon them.

The SPECIAL DOCKET SECTION of this Bureau passes upon applications of carriers to make voluntary settlements with shippers, which are referred to Division 2 for entry of the formal order required.

The Annual Report for 1927 shows for that period: 7,578 informal complaints received; 9,393 special docket applications received; 8,450 orders authorizing refund in the amount of $1,685,975; 1,298 applications dismissed, and 49,000 letters written giving information and informal rulings.

Bureau of Valuation

C. F.Staples
Director
Salary $10,000 per Yr.
628 Employees

This Bureau is charged with the task of making a physical valuation of all carriers, in order that the Commission might have before it in its rate-making determinations, and for other uses, this important information.

Its ENGINEERING SECTION inventories and values all structures used in the transportation service; its LAND SECTION values all real estate and miscellaneous rights, and its ACCOUNTING SECTION prepares the financial history of each road, including its security issues and its financial relationship to other roads.

Tentative valuations are prepared upon the basis of the reports of these experts which are served upon carriers, and the accuracy of which is defended by its LEGAL SECTION when protested. Opportunity is provided for hearings before EXAMINERS to try out disputed points.

This Bureau polices carriers' returns of investment since valuation date in order that these later may be used in keeping current the basic valuations.

Tentative valuations have been served on all steam railroads, telegraph companies, and the Pullman Company, and final valuations are expected to be completed in 1928.

The Bureau is now organizing for the purpose of bringing these basis valuations up to a current date, since, due to the enormity of the task, the basic valuations were made as of staggered dates.

It prepares valuations for the purpose of testing the excess return resulting in recapturable income under Section 15a of the Act.

Bureau of Traffic

W. V. Hardie
Director
Salary $10,000 per Yr.
154 Employees

Scrutinizes and files new tariffs, reissues and supplements covering freight, express and pipe-line rates, passenger fares and commodity classification schedules, tendered by carriers, approving or rejecting them. Through its SECTION OF TARIFFS, SUSPENSION BOARD, FOURTH SECTION BOARD, and RELEASED RATES BOARD, passes upon all schedules of rates, issues special permits to file tariffs on less than statutory notice, suspends new tariffs, and makes fourth section orders, while through its EXPRESS and CLASSIFICATION SECTIONS passes upon express rates and classification of commodities.

Acts in an advisory capacity in connection with the disposition of formal cases.

Settles, through informal negotiations between shippers and carriers, many controversies without litigation.

Maintains official and public tariff files.

The 1927 Annual Report shows:

94,952 tariff publications filed, and 1,144 rejected; 35,680 powers of attorney of concurrence filed; 5,549 special applications, of which 4,585 were granted and 588 denied; 36,652 letters relating to tariff construction and 29,982 written; 12,284 rate memoranda prepared.

Rate readjustments were protested and suspension asked in 590 instances.

Fourth Section applications numbered 276; 248 such applications were disposed of by formal orders.

In addition to employees in the fourteen bureaus, 32 employees are engaged in the private offices of Commissioners.

* 1 WOODLOCK
2 TAYLOR
3 BRAINERD
4 PORTER

4 MONTH PERIODS COMMENCING JAN. 1928

DIVISION 3

Comr. Aitchison
Comr. Taylor
Comr. Porter

DIVISION 6

Comr. Eastman
Comr. Esch
Comr. McManamy

DIVISION 5

Comr. Esch
Comr. Lewis
* Rotating Member

Comr. AITCHISON

Bureau of Inquiry
T. P. Healy
Director
Salary $6000 per Yr.
21 Employees

This Bureau is charged with the discovery and presentation of evidence tending to show violations of the Act, particularly of the criminal sections, preparing informations for submission to the Department of Justice for prosecution in Federal Courts.

For the period covered in the 1927 Annual Report, 25 indictments were returned for violations of the Interstate Commerce and related acts; 10 informations were filed; 43 cases were concluded, and $45,840 in fines were imposed.

Prosecutions instituted were distributed over 24 states and the District of Columbia.

Comr. ESCH

Bureau of Safety
W. P. Borland
Director
Salary $6000 per Yr.
96 Employees

This Bureau conducts investigations, prescribes rules and regulations respecting operation of railroad trains, specifying the number of hours railroad employees shall work in operating trains; investigates and determines cause of railroad collisions and other accidents; inspects cars and locomotives; conducts tests and laboratory demonstrations to determine the proper kind of equipment to be used.

Tests of power-brake devices are conducted; regulations for maintenance of air brakes and air signal equipment have been formulated; make laboratory demonstrations of devices for detecting presence of transverse fissures in rails.

Approximately 1,430,000 cars and locomotives were inspected during the period covered in the 1927 Annual Report.

Comr. ESCH

Bureau of Signals & Train Control
E. H. DeGroot, Jr.
Director
Salary $7500 per Yr.
22 Employees

This Bureau prepares specifications and requirements for the installation of automatic train-stop and train-control devices.

Investigates installations of block signal systems and prescribes specifications and requirements therefor.

Investigates accidents caused by lack of devices or ineffective function of same and prescribes methods for preventing recurrences.

On November 1, 1927, 8,154 road miles (14,692 track miles) and 6,993 locomotives had been equipped with train control devices.

Comr. McMANAMY

Bureau of Locomotive Inspection
A. G. Pack
Chief Inspector
Salary $6000 per Yr.
92 Employees

This Bureau is charged with the inspection of the entire mechanism of locomotives and tenders. It reports upon the compliance with the requirements of the Ash-pan Act, and passes upon applications for authority to make changes in equipment, and reports the character of repairs made.

Special assignments of inspectors are made to investigate certain railroad accidents.

Specification cards and alteration reports are checked and analyzed to determine whether boilers represented are so constructed and repaired as to render safe and proper service. Corrective measures are taken with respect to discrepancies.

Information of violation of locomotive inspection acts are lodged with proper U. S. attorneys for prosecution.

For the period covered by the 1927 Annual Report, 1806 specification cards and 9076 alteration reports were filed and checked 8 cases were reported to U. S. attorneys, of which three were confessed and five are still pending; reports were filed on 67,835 locomotives, 97,227 locomotives were inspected, of which 29,995 were found defective and 2,539 were ordered out of service.

Comr. McMANAMY

Bureau of Service
W. P. Bartel
Director
Salary $7500 per Yr.
35 Employees

This Bureau is concerned with operation of the physical plant of railroads, involving the use, control, supply, movement, distribution, exchange, interchange, and return of locomotives, cars and other vehicles, and the supply of trains, particularly in times of emergency.

It issues service orders for the equitable distribution of cars, keeping a check on the movement of cars, investigating terminal congestions with a view to relief through transfer of cars to places where most needed. Has jurisdiction over embargoes when declared, and the handling and movement of all commodities.

Ordinarily the organization is skeletonized but is capable of expansion in emergencies through the establishment of 15 zones and headquarters of service agents at principle terminal points. These service agents keep in touch with transportation conditions at these important gateways, and through personal contact with shippers and railroad officials promptly adjust local matters of dispute and detect abnormal conditions.

This Bureau promulgates rules and regulations for transportation and handling of explosives and other dangerous articles.

Holds investigations concerning excess expenditures for construction and repair and rental of equipment. Also investigates cost of construction and repair of equipment at outside shops, expenditures for maintenance of way, and the use of private passenger train cars.

Reproduced from a Chart Prepared by the
Research Office
National Association of
Owners of Railroad and Public Utility Securities
INCORPORATED
MILLS BUILDING, WASHINGTON, D. C. MAR. 1, 1928.

Modern Yards and Terminals

Western Railway Club meeting devoted to this subject—
Addresses by J. S. Morris and R. H. Ford

AT the regular meeting of the Western Railway Club held Monday evening, April 16, at the Hotel Sherman, Chicago, the subject of modern yard and terminal facilities was discussed in detail and many suggestions made for improvements in these two vital parts of the railroad physical plant. The principal addresses were made by J. S. Morris, engineer of shops and machinery, New York, Chicago & St. Louis, and R. H. Ford, assistant chief engineer, Chicago, Rock Island & Pacific.

One of the points most strongly emphasized during the meeting was the necessity for backing up requests for new facilities with detailed figures of costs and savings, which have been computed with as high a degree of accuracy as possible. It was also pointed out that tentative plans for improvements should first be submitted to and receive the approval of the men who will operate them, otherwise the desired results are not likely to be secured.

Mr. Ford said that one of the most important present requirements is adequate earnings so that railroads can install the improved facilities they know to be justifiable.

An honored guest of the evening was Frank McManamy, member of the Interstate Commerce Commission. At the close of the discussion, moving pictures were shown of the direct steaming method of firing up a locomotive at the Grand Trunk engine terminal, Elsdon avenue, Chicago.

Address by J. S. Morris

Engineer of Shops and Machinery, Nickel Plate, Cleveland, Ohio

The yard and terminal facilities of the railroads in this country are being improved continually and it behooves all progressive railroad men to keep in touch with the latest developments so that they can make intelligent recommendations for modernizing their respective facilities.

Before discussing the various improvements necessary in modernizing yards and terminals, it will be worth while to study a few of the steps advisable, preliminary to making specific requests.

Sometimes the need for a certain improvement is obvious to all concerned, but when the time comes to present the proposition to the management it is not done in a convincing manner, with the result that the improvement requested is not authorized.

When a request for a new facility is made there is often a tendency to look at the situation entirely from the physical standpoint and not give proper consideration to the financial side. The men who authorize improvements are generally interested in knowing all of the facts in regard to costs and savings, and is it not logical, therefore, that the money side of the proposed improvement be stressed, as well as the physical features?

A good example of this was recently called to my attention on a certain railroad that needed a new facility at one of its small engine terminals. At this particular terminal the old facility had been used a number of years, was entirely out-of-date and needed to be replaced.

Each year a request was submitted to the management asking that modern equipment be installed in order to avoid extensive repairs and to improve the operation.

Later the request for this improvement was presented to the management in a different manner and it read about as follows: "This facility is 40 years old and should be replaced with modern apparatus. The attached detail plan shows the location and arrangement that we recommend. This plan has been approved by the men on the ground, and our maintenance of way department estimates that the total cost will be less than $12,000. As soon as the new facility is installed we can reduce our expenses $4,500 per year and improve the operation. After deducting 10 per cent for interest and depreciation there is a net profit to the railroad of 27 per cent on the investment." Three days after the request reached the management, the improvement was authorized and instructions were issued to order the necessary apparatus by wire and install it immediately.

Reasons for the Prompt Action

Why was this improvement authorized in three days when previous requests for exactly the same improvement had been ignored for a number of years? It may have been an accident that the final request was granted so soon, but several fundamental facts about it deserve consideration.

First, a definite plan was submitted showing the exact location and arrangement of improvement desired.

In many cases, the railroad man knows what new facilities are needed but has not determined where they should be located for best results. We have all seen cases where improvements have been authorized without sufficient previous study with the result that not enough space is

found available to accommodate the necessary improvements.

Second, the plan was submitted to the men on the ground for their criticism and approval.

This is an important feature in connection with most new improvements. It makes no difference how good a plan may be, or how experienced are the engineers who developed the idea, if the advice and approval of the men on the ground who will operate the new improvement have not been secured, it will seldom be used to maximum advantage after installation.

Third, the total cost of the improvement was known before the request was submitted.

Often changes are requested without stopping to find out what they will cost. The men who handle the money for the railroads desire to know exactly what the proposed changes will cost, and they are generally anxious to know that the estimate is sufficiently large to cover the job, so there will be no embarrassing explanations after the job is completed.

Fourth, the savings that could be made were known definitely before the request was submitted.

This is the most important single feature. The fact that it was definitely known that a net savings of 27 per cent could be made and the cost of operation reduced $4,500 per year was the main factor that decided the issue immediately.

Guard Against Over-Estimates

It is often the case that the improvement requested is more elaborate and expensive than required, and after the work is completed it is found that an embarrassing mistake has been made. I have had occasion to visit new enginehouses where the number of stalls required was considerably over-estimated, possibly 50 stalls being built where only 30 stalls were necessary. Or possibly four cinder pits were installed where only two were needed. The reaction from a mistake of this kind is hard to overcome.

It often happens that an old, dilapidated coal dock will be used for a number of years, but when a new coal dock is authorized we go to the other extreme and build a dock entirely too large and elaborate. The result is that the money authorized for new work becomes exhausted and it is necessary to eliminate a number of smaller improvements that are badly needed.

In asking for new terminal facilities it is well to remember that improvements in operation may make it possible to get along with smaller quarters than before. Sometimes a new 30-stall enginehouse with a modern coal dock and cinder pits will operate easier than an old 40-stall terminal that is crowded to capacity.

There is a feeling among railroad supervisors, especially shop foremen, that railroads do not want to spend any money for improvements that can possibly be avoided. The foremen feel that they are compelled to use old inefficient tools just as long as they will last. This feeling may be justified on some railroads, but it has been my experience that most of the roads are anxious to learn about and install new devices or improvements that will save money or better the operation.

How many railroads will turn down a recommendation for a new boiler washout plant at a permanent engine terminal if the request is submitted to them in the proper manner, and it is definitely proved that the plant will pay for itself in less than two years' operation? How many progressive railroad managers will turn down a request for a new electric jib crane truck for handling heavy material at an enginehouse if they are convinced that a 40 per cent profit on the investment can be made?

In some cases it is difficult to prove conclusively just what savings can be made, but, as a rule, it is not a hard matter to set up the supporting data for any improvement if sufficient time is spent analyzing the details of the situation.

Yard and Terminal Improvements

What are some of the latest developments in modern yard and engine terminals? [Mr. Morris here referred briefly to some of the important yard and terminal improvements, including car retarders, flood lights, pneumatic tubes, teletype printing machines, direct steaming, modern drop tables, three-point bearing turntables, electric crane trucks, electric locomotive blowers, etc.—Editor.]

One of the features of train yard design that deserves more consideration than it sometimes receives is the proper location and arrangement of the bad order car repair tracks. It is imperative that, with the high speed movement of trains through train yards, cars be switched to the repair tracks as quickly as possibly in order to avoid excessive delays. A few years ago nothing was said if a car was delayed one or two days on the repair track, but with present operating conditions it is vital that light repairs be completed in a few hours and cars put back into the next train. In some cases, the cars leave the terminal in the same train. For quick handling of bad order cars, the repair track layout must receive considerable study in detail and due attention be given to flexibility of operation.

The practice of making light repairs to cars at night has been adopted by several railroads in order to expedite the movement of bad order cars. This practice makes it necessary to light the repair track grounds with floodlights and also to furnish small portable floodlights for the car repairmen.

There is a growing tendency to make a larger number of light car repairs in the train yard and avoid switching cars to the repair track. This practice involves assigning a number of car inspectors and repairmen to each train and these men are provided with small tool and supply boxes, which are scattered throughout the train yard in order to permit making minor repairs to the cars while in the train.

A few years ago the average railroad man was not proud of the appearance of his engine terminals and as a rule the enginehouse was the poorest and most dilapidated building on the railroad. However, during the past 10 years this situation has changed, with the result that a number of fine enginehouses and engine terminals have been built, most of them provided with the latest facilities to handle and repair large modern locomotives.

Power Plant—Unit Coal Pulverizer

Often a modern and efficiently-operated engine terminal will have an out-of-date power plant which costs more to operate than any other facility around the terminal. The modern enginehouse should be provided with a modern power plant, having high-pressure water tube boilers. At the larger terminals the boilers should be fired with unit pulverizers or stokers, in cases where coal is used as a fuel. Where steam is used to operate air compressors, electric generators and water pumps, it is often found that superheaters should be provided. In every case, soot blowers are necessary to clean the boilers properly.

With the development of the direct steaming system of firing locomotives it is of vital importance that the power plant boilers be of ample capacity, designed to

carry a steam pressure of at least 150 lb. Better results can be obtained with even higher pressures up to about 200 lb.

The pressure should not greatly exceed the boiler pressure carried on the locomotive boilers, otherwise the safety valves will blow.

One of the latest major developments in the power plant field is the unit type coal pulverizer used for firing boilers, which is generally conceded to be one of the greatest improvements made in boiler plant operation since the development of the stoker. The unit coal pulverizer is a small motor-driven machine, located directly in front of the boiler. Crushed coal is fed into this pulverizer from an overhead coal bunker much the same as coal is fed into a stoker. The unit pulverizer consists of a set of revolving paddles which strike the small lumps of coal and pulverize them largely by impact. After the coal passes through the paddles, it is blown directly into the firebox by means of a blast fan mounted on the pulverizer shaft. With this system of firing, all of the coal burns in suspension and it is unnecessary to use grates in the firebox.

A few of the advantages of this system of firing are: Minimum amount of labor required to operate; ability to use low grades of fuel; boiler operation at extremely high capacities, and high average over-all efficiency over an extended period of time.

Within the past few years there has been a marked advance in the development of mechanical cinder-handling equipment and there is little comparison between the design and operation of the new type plants and the older systems which were somewhat unreliable, especially for use at the more important terminals.

The latest design of plant consists briefly of a vertical elevator, operating a cinder bucket by means of a semi-automatic motor-driven hoist. This bucket passes under one or more tracks and stops at the will of the operator at any track. This type of plant is low in first cost, simple to operate, requires a minimum of ground space, and is reliable in bad weather.

Revision of Eastern Class Rates

Recommends distance scale for basic use similar to that for southern territory

WASHINGTON, D. C.

A GENERAL revision of class rates throughout Official Classification territory, based on a distance scale of maximum rates for basic use and 23 classes having a percentage relation to the first-class rates, is recommended by Attorney-Examiner Howard Hosmer of the Interstate Commerce Commission in a proposed report made public on April 16 in the Eastern Class Rate Investigation, which the commission has had under way since 1924. The proceeding is a general investigation of the interstate class rates in Official territory, which roughly covers the territory east of the Mississippi and north of the Ohio, applicable via all-rail or rail-water routes, which was instituted May 13, 1924, upon petition of a joint committee representing both carriers and shippers, after a revision had been in contemplation since the time of the Railroad Administration, in 1918.

Following the service of the proposed report the railroads plan to make a traffic test to show the effect, after which the commission will announce a date for filing exceptions to the report and for oral argument, following the practice which resulted in the establishment recently of a revision of the class rates in the Southeast on a mileage-scale basis.

The investigation has been handled from the standpoint of a revision rather than from a revenue standpoint, but the report says: "The new system of class rates should clearly not yield less than the present aggregate revenues. On the contrary, there is ground for the view that class-rate traffic in this territory, particularly that belonging to the higher classes, might well pay higher rates than those now in effect. This view is held by many authorities on transportation economics, who believe that freight charges are of far less relative importance in the case of high-grade, manufactured commodities than they are in that of low-grade, raw materials, and it seems to have been at least in part responsible for the enactment of the Hoch-Smith resolution. It is not improbable that under this resolution and the proceedings in No. 17,000 reductions in certain rates may be ordered which will necessitate some recoupment in revenue from other forms of traffic, and class-rate traffic in official territory seems a particularly appropriate source for reasons which will be stated."

The proposed report contains 165 printed pages, including appendices showing the various proposed scales. Approximately a third of the report is dovoted to a statement of the background of the investigation, the present rate structure, and the proposals made by shippers and carriers during the hearings. Approximately 100 pages are devoted to the discussion and conclusions, which are expressed in 18 specific findings. The record in the case so far includes 11,849 pages and 1,002 exhibits. With the report the commission made public a brief statement giving a resume of the proposed findings as follows:

Resume of Findings in Proposed Report

The proposed report recommends a distance scale of class rates for basic use throughout Official Classification territory in substantially the same manner as the scale prescribed for use in southern territory. The first-class rates proposed, however, are about 73 per cent of those prescribed for the South. The progression of the scale is briefly indicated by the following first-class rates:

Miles	Cents
5	30
75	51
100	56
150	66
240	79
500	118
900	156

Below first-class 22 classes are recommended with percentages ranging from 92.5 to 13. The present classes would have the following percentages: second, 85; Rule 25 and third, 70; Rule 26, 55; fourth, 50; fifth, 35; sixth, 30.

Between points in northwestern Illinois, Zone C in Michigan, Zone B in New England, certain branch lines of the New York Central in northern New York and certain branch lines in Virginia, West Virginia, and Kentucky, and other points in Official territory rates approximately 10 per cent higher than the basic level are proposed. To and from certain branch lines of the Chesapeake & Ohio and Norfolk & Western a still higher basis is proposed. Within Zone A

in New England the proposed basis is 5 per cent higher and within Zone B 15 per cent higher than the basic level. The Ulster & Delaware and Bangor & Aroostook are excepted from the proposed findings. No specific basis is proposed for short lines. Distances are to be computed over shortest possible routes. Reasonable grouping would be authorized. Increases in rates on fruits and vegetables and dairy products would not be permitted under the proposed findings.

The report authorizes the grouping proposed by the carriers at New York City and states the basis of rates in detail, following substantially the rates proposed by the carriers. An allowance of 20 miles for interchange across New York Harbor to and from New England is authorized. The report proposes to group Jersey City with New York on New England traffic. The addition of constructive mileage at Baltimore and Philadelphia is disapproved, and the report recommends basing distances on central points in those cities.

The report recommends that standard rail-lake rates to and from Chicago be made 85 per cent of the all-rail rates and rail-lake-rail rates via Chicago 90 per cent of the all-rail rates, but recommends no other findings as to water-rail rates.

In discussing the reasons for the statement given above that class-rate traffic in Official territory may present a field for possible recoupment in revenue, and by way of giving an idea of the level of the base scale proposed the report says in part:

Class rates in official territory differ rather radically from those which have been passed upon in the South and Southwest. Not only are they much lower in level, but they apply to a much wider range of traffic. In the other territories class rates appear to be of particular interest to jobbers, and the traffic which they move seems to be predominantly less-than-carload; for carload traffic of any volume commodity rates have generally been provided. This is not the situation in official territory, where a great deal of very important carload traffic moves on class rates. Perhaps the best illustration, although many others could be given, is afforded by iron and steel articles, which move to a very considerable extent in official territory on fifth-class rates, whereas they move almost exclusively within and to and from the South and Southwest on commodity rates. Official territory is, of course, the great manufacturing district of the country, and at the hearings in this proceeding many representatives of large manufacturing interests presented evidence.

A corollary of this situation is that, as compared with the class rates, the commodity rates on heavy, low-grade articles in official territory are relatively high and in the other territories relatively low. While it is difficult to determine the fact with any exactness, it is quite clear from general knowledge, and also from evidence here of record, that the spread between the class rates in official territory and those in effect in the South and Southwest is not an accurate index of the differences in general rate levels, the latter differences being relatively considerably less. Further results of the situation are that the rates on less-than-carload traffic and light-loading, high-grade carload traffic in official territory appear disproportionately low, and that at the boundary of that territory with southern territory, and to a lesser extent with western territory, abrupt changes in the level of class rates occur which give rise to many complications and complaints.

It is evident that while the record in this proceeding does not warrant any radical increase in the level of the class rates in official territory, the situation above described, and indicated by the facts of record, does support some change in this direction, more particularly in the case of the higher classes. Such a change would tend to relieve somewhat the acute situation at the territorial boundaries, and it would be a step toward a redistribution of the transportation burden more nearly in line wih service values. Furthermore, class rates between official and southern territories which were formerly made by combination on the Ohio River have recently been reduced by the introduction of a lower basis of joint through rates, and a similar change is being sought between western trunk-line and official territories. Such changes necessarily involve losses in revenue to the official lines.

It is clear that any distance scale for application between central and trunk-line territories which would at least preserve present revenues from interterritorial traffic must be higher than the present central scale, if for no other reason than the drastic reductions on the class most important from the standpoint of revenue, fifth class, which would result from use of the latter scale extended. Scales suggested by various shippers' witnesses, producing fifth-class rates for the 900-mile block ranging from 38.5 to 50.5 cents also would clearly fail to maintain present revenues in view of the fact that the present average interterritorial fifth-class rate for that distance appears to be in the neighborhood of 57 cents. Several individual witnesses for the carriers expressed the opinion that the interterritorial rates should be revised on the basis of a New York-Chicago first-class rate of $1.50. In their revised proposal the New England lines came out definitely in favor of this base rate, and it was tentatively suggested by several individual railroad witnesses connected with other lines. This proposal seemed to be based on the belief that a first-class rate as high as $1.61 between New York and Chicago could not be justified, but it was coupled with a further proposal to make fifth class 37.5 per cent of first with the object, which the carriers have held paramount throughout this proceeding, of avoiding or minimizing reductions on fifth class. In the scale hereinafter proposed the first-class rates are slightly higher than those contemplated in the proposal of $1.50 between New York and Chicago and the fifth-class rates are slightly lower.

Starting with 30 cents for the initial 5-mile block, the first-class scale herein proposed progresses alternately 1 cent and 2 cents for each 5-mile block to 75 miles, 1 cent for each 5-mile block from 75 to 100 miles and 2 cents for each 10-mile block from 100 to 150 miles, alternately 1 cent and 2 cents for each 10-mile block from 150 to 240 miles and 3 cents for each 20-mile block from 240 to 500 miles, 2 cents for each 20-mile block from 500 to 800 miles and 2 cents for each 25-mile block above 800 miles. It will be noted that the changes in the rate of progression occur at 75 miles, 150 miles, 500 miles and 800 miles. In this respect it is substantially similar to the southern scale, except that in the latter there is a break at 400 miles instead of 500. This scale has not been devised with the object of arriving at any particular rate for any given distance or between any given points. The first-class rates are about 73 per cent of those in the southern scale and about 65 per cent of the southwestern first-class rates, but of course because of differences in class percentages these figures do not afford a comparison of the total volumes of class-rate revenue which would result in the three territories. It is probable that this scale would slightly increase revenue from intraterritorial traffic in official territory, but having in mind the extent to which class-rate traffic is high grade, the reductions in interterritorial class rates to and from the south recently made, probable reductions in commodity rates between official and southern territories through the establishment of "overhead" rates, as well as possible reductions in revenue from both class and commodity rates to and from western territory in the event that "overhead" rates are established there, an increase in class-rate revenue on intraterritorial traffic would not be inopportune. The approximate extent of the increase will be shown by the traffic test, and this information will be of great value in the final determination of the proceeding.

The plan proposes that the various class scales shall bear the following percentage relations to the first-class rates: 100, 92.5, 85, 77.5, 70, 65, 55, 50, 45, 40, 37.5, 35, 32.5, 27.5, 25, 22.5, 20, 17.5, 16, 14.5, and 13.

* * *

A Corner in One of the New C. B. & Q. Club Cars Panelled with American Walnut

Tunnel Atmosphere Tests on C. & O.*

Comparisons of cab conditions on Mallet compound and simple articulated locomotives

AT the request of the Chesapeake & Ohio a number of tests were made to determine the temperature, humidity, and composition of the atmosphere in certain tunnels of that railroad between Clifton Forge, Va., and Hinton, W. Va. The purpose of these tests was to determine conditions in the cabs of freight locomotives while pulling trains through these tunnels.

Tests were made of two types of locomotives, classified by the railroad company as the H-6 and H-7. Both are of the articulated type, but the H-6 class is of the Mallet compound type whereas the H-7 operates all four cylinders at boiler pressure, thereby exhausting steam at a higher temperature than the H-6. It was desired to determine the relation between conditions on the H-6 and H-7 engines under comparable conditions of operation. This information supplements previous tests by the Bureau of Mines, discussed in its Reports of Investigations Serial No. 2624†, entitled, "Temperatures in Cabs of Freight Locomotives Passing Through Tunnels of Chesapeake & Ohio Railroad," by S. H. Katz and E. G. Meiter, July, 1924. Three incidental tests of passenger engines were also made.

Description of Tunnels

Tests were conducted in the following tunnels: Lewis, Alleghany, Second Creek, Big Bend, and Little Bend. Particular attention was paid to the Big Bend, Second Creek, and Alleghany Tunnels, as these are the longest on this subdivision and grades are encountered in all three. East-bound freight trains are "fanned" by a ventilating fan at the west end of Big Bend Tunnel. Trains are kept behind the smoke when traveling east-bound in this tunnel; for this reason, tests were made of west-bound trains only. The Big Bend Tunnel has an ascending grade from each end, with a high point or hump about 1,500 feet from the eastern portal. The Second Creek and Alleghany Tunnels have an ascending grade from west to east, and tests were made of trains traveling in this direction. Table I gives details of these tunnels.

The load pulled in all tests was at least the average tonnage for the locomotives used, and in some instances exceeded the previous maximum load pulled. In the majority of tests the trains were brought to a stop before entering tunnels. Although this is not a common practice during normal train operation, it was done on the test trains to obtain more severe conditions than usual.

Temperature measurements were taken in the tunnels with a wet and dry bulb thermometer of the sling type, and samples of the atmosphere were obtained for determination of the carbon monoxide, sulphur dioxide, carbon dioxide, and oxygen. These temperature measurements and gas samples were taken in the engine cab near the engineman or fireman. Several qualitative tests for hydrogen sulphide were made, but all were negative. On several occasions, blood samples were taken from one of the members of the test crew as soon as possible after emerging from the tunnels. None of these samples showed any significant degree of saturation with carbon monoxide.

Big Bend Tunnel Tests

Six test trips were made through the Big Bend tunnel, the first of which was operated eastbound with the tunnel fan blowing and the locomotive traveling in fresh air behind the smoke. The effective cab temperature on this trip was 85 deg. F. Four westbound trips were made with the simple articulated type locomotives, with trains varying in tonnage from 2,234 to 2,483 and one westbound trip was made with the Mallet compound locomotive and a train of 1,558 tons. The time in the tunnel on the westbound trips varied from four to five minutes. On the first westbound trip with the simple locomotive, steam was on full for two-thirds of the way through before the throttle opening was reduced. A thermomenter about 18 in. from the roof and in the center of the cab, showed 140 deg, as the train left the tunnel and conditions were otherwise bad on this trip.

Table I—Tunnels on the Alleghany Sub-Division of the Chesapeake and Ohio in Which Tests Were Made

Name of tunnel	Length, feet	Height, rail to crown, feet (approx.)	Width, feet (approx.)	Grade, feet per mile	Direction of ascending grade	Number of tracks	Remarks
Little Bend....	668	21¼	27	21	East	2	No fan in this tunnel.
Big Bend.....	6501	18	14	4	West	1	Four ft. per mile west for about 1,500 ft. at east end and 21 ft. per mile east for about 2,979 ft. at west end. Fan at west end blows west to east.
				21	East		
Second Creek..	1561	18¾	14½	20	East	1	No fan in this tunnel.
Alleghany	4731	19½	26	30	East	2	No fan in this tunnel.
Lewis	4023	16	14½	60	West	1	Fan at east end blows east to west on west-bound freight trains. East-bound trains drift through.

The backs of the hands of one of the observers were severely blistered. Eye, nose and throat irritation was suffered and respiration was difficult. A marked improvement in conditions was noted immediately after the throttle opening was reduced. The effective temperature in the cab during this trip was approximately 123 deg. F., with a relative humidity of 90 per cent or more. In all tests in the Big Bend Tunnel except the one already mentioned, the amount of carbon monoxide was negligible as affecting health and safety. In that test one sample showed 0.06 per cent. This concentration would have no bad effects unless inhaled for at least one hour, and may be disregarded because exposure during passage through the tunnel is brief, There would be danger from this gas only if a train was stopped in the tunnel; then the carbon monoxide might markedly exceed the figure given.

* A summary of the U. S. Bureau of Mines' Reports of Investigations, serial No. 2858, entitled, "Tests of Atmospheres in Chesapeake & Ohio Railroad Tunnels between Clifton Forge, Va., and Hinton, W. Va.," by R. R. Sayers, L. B. Berger and W. P. Yant. The authors are, respectively, chief surgeon, U. S. Bureau of Mines, and surgeon, U. S. Public Health Service; laboratory assistant, Health Laboratory Section, Pittsburgh Experiment Station, U. S. Bureau of Mines, Pittsburgh, Pa.; and supervising chemist, Health Laboratory Section, Pittsburgh Experiment Station.

† See the *Railway Age* for September 13, 1924, page 461, for an abstract of this report.

Sulphur dioxide was present in all tests made in this tunnel, the maximum concentration found being 20 parts per million. Although this amount could not be considered dangerous, the irritating properties and odor of sulphur dioxide are decidedly unpleasant. Breathing through wet cotton waste gave relief from this gas.

As would be expected, the carbon dioxide content of the atmosphere was increased and the oxygen depleted, but conditions were never deleterious or dangerous. The maximum carbon dioxide found was 2.14 per cent, and the lowest oxygen 18.51 per cent.

On the three succeeding tests through the Big Bend Tunnel with the simple articulated locomotives pulling slightly greater loads than on the first trip, conditions did not approach the unbearable degree attained on the first test. The fact that a light throttle and the tunnel ventilating fan were used probably account for the improvement in conditions.

The single test Mallet compound locomotive through this tunnel indicated that temperature and humidity conditions were somewhat less severe than the average for the simple engines.

On only one of six trips through the Second Creek Tunnel was carbon monoxide found to an extent (0.09 per cent) which might be considered dangerous after exposure of 45 minutes to one hour. Sulphur dioxide was not found in dangerous amounts, the highest concentration being 20 parts per million. The increase in carbon dioxide and depletion of oxygen was not sufficient to be deleterious. The maximum carbon dioxide found was 1.15 per cent and the lowest oxygen 19.73 per cent. On the first trip through this tunnel, much discomfort was experienced from heat and humidity. However, on the next test the same engine was used with a slightly greater load and no marked discomfort ensued. This test was made using a light throttle through the tunnel.

Temperature and humidity conditions were found to be less severe with the H-6 (compound) locomotive than with the H-7 (simple) types through this tunnel, both on trains pulled by a single engine and on trains using an engine on each end. The effective cab temperatures for the former ranged from 101 deg. F., to 103 deg. F., while for the latter the range was from 111 deg. F., to approximately 123 deg. F. The time in the tunnel varied from 1 min. 10 sec. to 3½ min.

In tests through the Alleghany Tunnel the carbon monoxide content did not reach an amount that would be unsafe or produce discomfort for an exposure of one hour. Sulphur dioxide was not present in large enough quantities to be objectionable, the maximum concentration found being five parts per million. The increase in carbon dioxide and the oxygen depletion did not reach hazardous degrees. The maximum carbon dioxide found was 1.14 per cent and the lowest oxygen 19.68 per cent.

The temperature and humidity caused no marked discomfort during the majority of trips. In the last test, where two H-7 locomotives were used, the temperature and humidity were higher than in any other test through this tunnel and were uncomfortable, but conditions did not reach an unbearable degree of severity during the time consumed in making this trip. The fact that the Alleghany Tunnel is double-tracked may contribute to the better conditions found. Temperature and humidity conditions were somewhat less severe for the H-6 engines than on the H-7 type. The time in the tunnel varied from 4½ to 12 minutes, and was 9 minutes on the last test.

Tests through the Little Bend Tunnel were of such short duration that samples of the atmosphere were not taken. The temperature and humidity did not cause discomfort.

During tests of passenger engines no discomfort was experienced from temperature and humidity. One test for carbon monoxide was made with an engine pulling an unusually long train. The carbon monoxide content of the atmosphere was found to be negligible from a health and safety standpoint.

General Discussion of Results

Of all the tests only two showed any appreciable amount of carbon monoxide, and this in amounts that would have no dangerous effects unless exposure was for 45 minutes or longer. There was no health hazard from sulphur dioxide, carbon dioxide, or depletion of oxygen content of the atmosphere for the time of exposure in these tests. There would be danger from the gases found only if a train was stopped while in a tunnel.

The chief cause of discomfort was the high temperature and humidity. In one test the temperature was high enough to cause a surface burn. A similar test, with the engine worked under a lighter throttle, gave conditions that caused no marked discomfort, showing the relation that train manipulation bears to the conditions in the tunnels.

Table II—Effective Temperatures

Tunnel	H-6 Engines		H-7 Engines		Direction of travel
	Load, tons	Effec. temp.	Load, tons	Effective temperature	
Big Bend	1558	106	4996	85 [a]	East
			2234	123 (approx.)	West
			2428	123	West
			2483	104	West
			2386	123 (approx.)	West
Second Creek	3572	101	4996	123 (approx.)	East
	7145	102	5023	123 (approx.)	East
	7036	103	7145	119 [b]	East
			7036	115 [c]	East
			8191	111 [d]	East
				115 [d]	East
Alleghany	2925	89	3945	102	East
	7145	91	4195	98	East
	7036	100	7145	107 [b]	East
			7036	103 [c]	East
			8191	123 (approx.) [d]	East
				98 [d]	East

[a] Tunnel-ventilating fan on; engine traveling in fresh air behind smoke.
[b] H-6 head end. H-7 rear end.
[c] H-7 head end. H-6 rear end.
[d] H-7 head end. H-7 rear end.

Although many of the effective temperatures given are above those that would be practicable for long exposure, men are able to work for short periods—10 to 15 minutes—in temperatures up to 135 deg. F. with 100 per cent relative humidity without marked inconvenience; an exposure of one hour is not practicable. An exposure of one hour to 98 deg. F. with 100 per cent relative humidity causes the pulse-rate to be greatly increased, as well as causing a marked increase in body temperature and body metabolism, even when the individual remains at rest.

The maximum endurance found at 105 deg. F. saturated air is approximately 45 minutes and at 117 deg. F. the limit of endurance is 15 minutes; 135 deg. F. effective temperature could not be borne for any length of time by a man with a skin directly exposed. Thick clothing will protect or, in other words, will insulate the body from such temperatures. Work has been performed at 135 deg. F. effective temperature by using special suits of thick felt. Under these circumstances work has been performed for 15 to 20 minutes. It is noted that because of this clothing insulation the unclothed body is not actually exposed to the temperatures.

Consolidation Bill Reported

Policy of encouraging unifications of Railways recommended by House Committee

WASHINGTON, D. C.

WITH strong expressions of approval of a policy of encouraging and authorizing unifications of railway properties where the particular unifications are found to be in the public interest by the Interstate Commerce Commission, the House committee on interstate and foreign commerce on April 13 submitted to the House its report on the Parker bill, H. R. 12620, which was introduced by Chairman Parker of the committee on April 3. The bill represents the results of several weeks of study given by members of the committee to earlier drafts and the many amendments suggested by various interests most directly concerned with the legislation during the protracted hearings held by the committee both during the last session of Congress and this session.

Accompanying the report is an expression of minority views by Representative Rayburn of Texas, and signed by six others, all Democrats, out of the 23 members of the committee which takes the position that the bill is too ambitious in its scope and that the proposed legislation should have been confined to a simpler bill designed to correct admitted defects in the present law. The minority also object to the idea of "encouraging" a policy of consolidation in general and assert that the bill is a "banker's bill" and one that favors the majority stockholders besides being in "ruthless violation of states' rights."

The majority report, by Chairman Parker, contains both a general discussion of the necessity for the legislation and the principal features of the bill and a detailed analysis of its many provisions and the reasons for each. An abstract of the general discussion of the minority report follows:

Necessity for the Legislation

The policy of authorizing the unification of rail carriers and their properties if such unification is in the public interest has long been established. The provisions of existing law, however, under which it was contemplated that this policy should be carried out have proved impossible of administration; and the provisions of existing law which were contemplated to be of only temporary application, and which are admittedly inadequate, have been and are being resorted to. The time has come when the temporary provisions of the present law must be repealed and permanent provisions substituted therefor which are adequate to protect and promote the interests of the public, which are reasonably certain and possible of administration, and under which the established policy can be carried out.

Briefly, the primary purpose of the bill is to remedy the defects of the existing law in order that the established policy of permitting the voluntary unification of railroads and their properties may be carried out but only if, in each case, the Interstate Commerce Commission has determined that the proposed unification will promote the public interest. The bill has two main features.

First, it affords greater and more effective protection to the public by prescribing the standards to be considered by the commission and by providing that only unifications which will effectively promote the public interest may be authorized; and

Second, it affords to the carriers more flexible methods for carrying into effect a proposed unification which has been approved by the commission.

Our Present Railroad Problems

The public must have adequate and efficient transportation service at the lowest rates consistent therewith. The public has the right to demand of Congress that it establish a system of regulation which will give each community served the transportation upon which its life, its growth, and its development depend. Private operation of our transportation agencies under public regulation should be the permanent policy of our Government. Our present system of regulation, however, must be made more effective if private operation is to meet the just demands of the public.

During the years 1923 to 1927, inclusive, the Interstate Commerce Commission authorized the abandonment of 3,052 miles of railroad engaged in interstate commerce. The abandonment of lines necessary to our transportation system should not be permitted. But weak roads can not long remain in existence, nor can they render the service to which their users are entitled, unless effective means are found by which their operation can be continued and their service improved. Carriers must place themselves in a position which will invite the capital necessary to improve and promote the service they are rendering. Many weak roads have found it absolutely impossible to obtain the money necessary for capital expenditures. Even some so-called strong roads have been compelled to rely upon bond issues when a sound financial program demands the issuance of shares of capital stock.

Rates must be soundly made and adjusted. Carriers are entitled to charge rates which will yield them a reasonable return. The public, on the other hand, is entitled to the best service at the lowest rates compatible with that service. One rate, however, must be established for all carriers for a given service within a given territory. That rate must be adequate to permit the weak lines to live, even though a stronger carrier, if considered alone, could be compelled to render the service at a much lower rate. But if it were permitted to charge a rate less than the rate necessary for the weak carrier, a result directly contrary to the one desired would obviously be produced, for the stronger carrier would be given substantially all the business. Artificial divisions of joint rates are not sound, and there are many cases where joint rates do not exist. The recapture clause is not proving as effective as it was hoped.

Substantial and effective competition between carriers must be assured. Although it is generally supposed that competition between carriers in rates does not and can not exist, it is believed that there still remain real opportunities for competition in rates. Competition in service, however, will undoubtedly bring about many necessary improvements. As a matter of fact, many of our shippers today and a substantial portion of the consuming public are vitally interested in expeditious and safe delivery as well as in rates. But competition, whether in rates or in service, can not be effective unless the competing carriers are strong and well balanced.

The Policy of Authorizing Unifications

Argument is not necessary to support the soundness of the policy of encouraging and authorizing the unification of railroads and their properties. This policy has been established by the Congress, has been repeatedly recommended by the President, has been indorsed by the Interstate Commerce Commission, and it has been advocated by carriers, strong and weak alike, and by shippers. Transportation experts agree that the policy is sound.

During the entire period of many weeks which your committee has devoted to public hearings, with widespread and continued publicity, not a single witness appeared, or asked for an opportunity to appear, in opposition to the policy. It is not asserted that unification will remove all the difficulties of today in providing and maintaining adequate railroad transportation service and in effectively regulating carriers engaged in such transportation. Unifications upon sound principles, however, will prove a very substantial step forward toward the solution of our present problems and undoubtedly present the only effective method by which many of our present railroad difficulties can be relieved.

There is nothing new in the policy which the bill advocates. Unifications are almost as old as our transportation system. Progressive development in the unification of railroads has

been a continuous factor in railroad history. Practically all our great systems of today are the products of unifications. In the beginning the impelling motive was the extension of roads into the large trade centers in order to increase the ability to handle the expanding traffic, to permit the continuous handling of traffic, and to avoid delays and expense in frequent transfers. Subsequently, however, the movement became actuated by a desire to combine competing systems and the stranglehold of monopoly was substituted as the goal to be gained. Rate agreements, pools, and traffic associations became common. The public and the Congress, however, were quick to recognize the change in the ends to be accomplished, and the Sherman Act and the Clayton Act properly restrained further unifications of this nature. In addition, unifications of parallel and competing lines were commonly prohibited by State laws and constitutions.

Prior to the World War, however, it was recognized that railroad unifications were desirable. Congressional committees were studying the problem, only to be interrupted by the war and war legislation. Following the war the study of the problem was renewed, with the result that the Congress adopted the policy of railroad consolidations which became law with the enactment of the transportation act of 1920. Certain provisions of that law have been found to be impossible of administration and have tended to defeat the very purpose of Congress.

Protection of Public Interest

Your committee has devoted considerable time to working out effective provisions under which the interests of the public will be fully protected. Your committee is certain that the results which may properly be achieved through unifications can be brought about without in the slightest degree offering any possible opportunity for a return to the era of consolidations for purposes of monopoly. Only unifications which will promote the public interest are authorized by the bill. Section 202 (1) then provides that—

* * * In determining the public interest the commission shall give due consideration to the maintenance of competition between carriers and the prevention of any undue lessening of existing competition, the preservation and improvement of the service afforded by the necessary weak or short lines, the promotion of economy, the affording of better service, the securing of a simplified and more effective regulation of carriers, the ultimate establishment of a number of strong and efficient systems well balanced within themselves and with other systems, and to such other factors as may be in the public interest.

Each of the above provisions will be discussed in detail hereinafter. It is sufficient to point out at this time that the Congress and the public may rest assured that the public interest has been uppermost in the minds of the committee. If the public interest will be promoted by a proposed unification, everything should be done to encourage the prompt carrying into effect of the unification plan. If, on the other hand, it does not promote the public interest, the unification should be specifically prohibited and no opportunity should be afforded the carriers for attempting a unification. The selfish interests of the carriers and the narrow perspective of State authority must give way to the paramount demands of the interests of the public as a whole.

The Existing Law

As heretofore explained, the existing law consists of two provisions, one intended to be only of temporary application and to authorize the acquisition of control not amounting to a consolidation, and the other intended to be of permanent application and to authorize consolidations.

The temporary provision is found in paragraph (2) of section 5 of the interstate commerce act. The permanent provision is found in paragraphs (4), (5), and (6) of section 5 of the interstate commerce act. Paragraph (8) of section 5 grants immunity from the antitrust laws in carrying out orders of the commission under either of the above two provisions.

The Defects of Existing Law

The more obvious defects of the present law, discussed in detail hereinafter, may be briefly outlined as follows:

(1) The interests of the public are not adequately safeguarded.

(2) The provision intended to be of permanent application can not become effective because of the fact that it requires the commission to prepare a complete plan for the consolidation of the railway properties into a limited number of systems before a consolidation can be approved, and the commission has found it impossible to comply with this requirement.

(3) The temporary provision of the existing law has been resorted to for unifications which should be effected only under permanent provisions.

(4) The existing law provides for only one type of unification, namely, a corporate consolidation.

(5) Adequate corporate power and effective corporate machinery is not prescribed.

(6) Unifications under State law are not prohibited.

(7) The present law prescribes conditions which can not be complied with for years, such as the requirement that the par value of the securities must not exceed the value of the consolidated properties as determined under section 19 (a).

(8) The rights and remedies of dissenting stockholders are not defined.

Outline of the Bill

Briefly, the bill accomplishes the following:

(1) It authorizes railroad unifications which will promote the public interest and lays down very definite and specific standards to be considered by the Interstate Commerce Commission in determining whether or not a proposed unification will in fact promote the public interest.

(2) It removes the defects of the present law which have combined to prevent the promotion of the policy of voluntary unifications.

(3) It repeals the provisions of existing law under which so-called mergers have been attempted (although none has actually been authorized), and which have been subjected to considerable criticism.

(4) It grants to carriers all the power necessary to carry into effect a unification which will promote the public interest and which has been approved by the Interstate Commerce Commission, and removes existing barriers of Federal and State laws which otherwise would prevent the carrying into effect of the congressional policy.

(5) It affords adequate protection to dissenting stockholders who are not in accord with the will of the majority and who wish to withdraw from the enterprise.

(6) It relieves the commission of the tremendous and probably impossible task imposed upon it of preparing a complete and comprehensive plan for the unification into a limited number of systems of all the railway properties within the continental United States.

(7) It prohibits all unifications except those proposed and carried out in accordance with the act, including consolidations, mergers, acquisition of properties, and acquisitions of voting securities.

Views of the Minority

The undersigned members of the committee on Interstate and Foreign Commerce dissent from the views of the majority in reporting H. R. 12620. Among the many reasons for our dissent are the following:

Bill Too Ambitious in Its Scope

(1) The provisions of the transportation act of 1920 which relate to unification of carriers were hastily and ill considered and are admittedly inadequate. Paragraph 2 of section 5, which authorizes unifications which do not amount to consolidations or mergers, is too elastic in certain particulars and too rigid in others. Paragraphs 4, 5 and 6 have been found unworkable for the reason that they require the Interstate Commerce Commission to authorize unifications only after the adoption of a complete plan for the consolidation of all railways into a limited number of systems. This the commission has found it impracticable to do as it was too ambitious a plan and one that no man or commission had the wisdom or the foresight to be able to put into effect. The minority was willing and desirable of joining in the correction of these defects in the existing law. A recommendation that this be done has been made by the Interstate Commerce Commission in its report to Congress for 1925, 1926 and 1927.

This provision the majority was unwilling to adopt but under the guise of meeting this recommendation the committee has approved this bill which covers a much broader field than the recommendation, and, in our opinion, deals with aspects of unification never considered by the commission or at least not recommended by them and which are altogether unnecessary for the correction of such defects in the existing law as the commission has pointed out. Therefore, one of the fundamental faults of the bill is that it is too ambitious in its scope. Had the committee confined its efforts to meeting the recom-

mendation of the Interstate Commerce Commision, even that would have required a great capacity to deal with a highly complex subject. They have sought by the bill to cover to its remotest extremity the entire field of railroad unification. They have sought to enact a complete code of laws and to mold with a single cast a system which would not only meet existing conditions, but be sufficient for all time. We believe that we should go only so far this time as experience has demonstrated would be safe and sound and that much danger is to be encountered by going beyond the point where experience and knowledge extend.

Policy of Bill Is Not Merely to Permit, But to "Encourage" Consolidation

(2) Another fundamental fault with the bill is that it is written from the point of view that all consolidations are good and that all should be facilitated. The majority, in their report, frankly say:

Argument is not necessary to support the soundness of the policy of encouraging and authorizing the unifications of railroads.

It is obvious, we submit, that unifications are not desirable merely as such, and that a consolidation or merger may be productive of great harm unless it is proper and desirable of itself and the public interest adequately safeguarded. We most emphatically dissent from the views of the majority when they say that consolidation, as such, should be encouraged. We do not believe that it should be the policy of Congress to invite and urge railroads to throw themselves at once into consolidated systems.

We believe that this invitation would be taken by the railroads throughout the country for them to hastily consolidate their properties. We are of the opinion that the passage of a law that only permits the unification of the railroads without the urge is all-sufficient and that consolidation and unification when they do come should be by a gradual process.

Section 203 of the bill is too latitudinous in the grant of powers to the Interstate Commerce Commission. It clothes the commission with practically unlimited discretion in the allowance of unifications, which, in their opinion, may be in the public interest.

A Bankers' Bill

(3) The bill is written more from the standpoint of railroad financiers and big bankers than that of railroad operators.

The existing law as found in paragraph 6 (b) of section 5 of the interstate commerce act is as follows:

The bonds at par of the corporation which is to become the owner of the consolidated properties together with the outstanding stock at par of such corporation shall not exceed the value of the consolidated properties as allowed by the commission.

The bill sponsored by the majority repeals this provision. In the bill as first proposed in the committee a section similar to this was introduced but before the bill was reported it was stricken from the bill. Why, we ask. For more than 30 years many of the States have had laws forbidding a railroad corporation to have securities outstanding in excess of the value of the properties. No undue hardships have been worked on any railroad corporations. We believe that this provision should be restored to the law. There was a long fight waged in Congress before the commission was given the authority to forbid the issuance of spurious and unnecessary securities. Finally, section 20a of the interstate commerce act was passed, giving the commission full authority to approve or veto any application for issuance of securities. May we ask if this is not the entering wedge to defeat this very salient provision of the law which only demands that railroads shall hereafter be honestly capitalized? Why should a railroad company be permitted to issue stock and bonds far in excess of the value of its properties? The railroads are glad indeed to have their rates set on value. Why are they not willing to have their capital based on value?

In considering the proposed "Nickel Plate" consolidation the commission criticized the feature of the plan which placed control with promoters who might own less than a majority of the stock. This practice condemned in that case is legalized by the pending bill. It does not forbid the issuance of nonvoting stock, nor the control in numerous devious ways of the unified corporation by those who may own little or none of its securities.

The bill does not forbid the practice of the new and ingenoius device of financial manipulation in the issuance of nonpar value stock. We deem this harmful to the public as encouraging stock jobbing and speculation.

Ruthless Violation of States Rights

(4) The bill, in our opinion, to the mind of anyone who has any regard for the rights of States and their power to in any way control their own creatures, should appear insuperable in the fact that it provides for a ruthless disregard of all limitations placed upon corporations by the States under which they are organized.

Section 210 and 211 of the bill clothe carrier corporations, created by the States, with vast Federal powers. The States, in the exercise of their reserved powers, have granted certain of their Sovereign authority to carrier corporations. These creatures of the States have accepted their charter powers subject to strict limitations and under corresponding responsibilities.

We believe that there has really rarely been in our history a more fundamental invasion of the rights of the States than as provided by this bill, i. e., the assumption by the Federal Government of the power to clothe State corporations with Federal power, and in so doing to strike down the limitations and restrictions provided by the State for the control of its creatures. It may well be doubted that the Federal Constitution permits Congress to clothe the corporation created by a State with powers inconsistent with the laws of the State which chartered it.

Another ruthless invasion of the reserved powers of the States is found in section 214 of the bill. That section undertakes to strike down their powers of taxation, to specify wherein and how they may be exercised.

Further the bill grants large and important Federal powers to corporations, and this without requiring the beneficiary of congressional generosity to assume any corresponding burdens or responsibilities. In short, the corporations yield no consideration whatever in exchange for the new franchises and powers which are conferred upon them. The benefits conferred are in the form of a clean gift from Congress.

It is certain that the railroad corporations now enjoy various rights and powers which neither Congress nor the States which chartered them have power to take away. Experience and modern practice recognizes that certain of these powers exceed what the public interest requires that the corporation should have. These powers, now become improper and excessive, the corporation should be required to surrender, as the price of availing themselves of the benefits conferred by this bill. For instance, the public interest seems to require that a carrier corporation should hold only such powers as are reasonably required to enable it to function as such. It should not engage in dealing in merchandise or real estate or in the banking business. It should be required to give up such powers as the consideration for consolidation of merger.

Carrier corporations might well be required, as the price for the benefits conferred by this bill, to accept the valuations of their property made by the Interstate Commerce Commission, or to surrender the right to have counted, as an element of value upon which they may earn a fair return, that part of the valuation upon rights of way and other real estate which may be in excess of their prudent investment in same.

We believe that this bill is destructive of competition between carriers in service, as it will allow the consolidation of the parallel and competing lines. For instance, the so-called Loree proposal, consolidating the Kansas City Southern, the Missouri, Kansas & Texas, and the Cotton Belt would, in our opinion, destroy practically every vestige of competition in the territory that they now serve. If those three roads are consolidated what reason would there be for improving the service for the reason that they would get all of the business anyway by running trains either slow or fast?

Short-Line Railroads

(5) In the beginning of the advocacy of railroad consolidation under the vast scope of this bill it was strongly urged in its favor that it would care for and take into the consolidated systems all weak or short lines. We believe that these feeders and pioneers in the field of transportation should be preserved and fostered and that when consolidation does come and when application for consolidation is pending before the Interstate Commerce Commission that the railroads and the commission should be given to understand distinctly that it is our policy that these short and weak lines that are necessary and vital to the economic life of any community should be taken care of and the railroad management not allowed to consolidate only the properties of the rich, desirable railroads and leave these pioneer railroads to starve and become streaks of rust and these communities be destroyed. The owners of short-line railroads are hoping that they will be taken into these consolidated systems, but the testimony before the committee will not give much hope to their wish.

Bill Favors Majority Stockholders

(6) This is a majority stockholders' bill. While it enables a dissenting minority to obtain payment for their stock on a valuation, it deprives them of the power of veto. Minority stockholders who have acquired shares in a corporation, which, under its charter, had no power to merge with another corporation, will find that such powers are granted by this bill. It will be a great error to assume that the unification of two or more carriers will not be made in cases in which the control of all of the corporations is held by a single group of financiers, who will show little regard for the rights of the minority, and will be moved by selfish and unfair consideration to themselves.

Hope of Reduction in Rates

(7) The President in his message to Congress at the beginning of this session stated that the "Purpose of consolidation is to increase the efficiency of transportation and decrease the cost to the shipper." Nowhere in the testimony of the railroad managers and experts who appeared before the committee is there held out the promise that rates and charges will be reduced because of consolidation. No testimony before the committee of the railroad managers or experts held out any promise or hope that there would be substantial, if any, reduction in rates, but all denied that freight rate reduction would result from the operation of this bill. If this be true, then we ask what are the people to hope for from the passage of this bill? They may expect gigantic combinations of railroads and capital with all of its economic and political influence, with its menacing hazards, and its uncertain destiny. The measure is in line with the policy of government favored by those now in control with which we do not agree. The policy consists of abandoning, or to use a more euphonious term, delegating the real control and protection of the people's rights to this, that, and the other agency.

Before any more great grants of power are given to the commissions and bureaus of the Government it would be well to wait the outcome of the vast power we have already lodged in some of our bureaus and commissions.

SAM RAYBURN. ROBERT CROSSER.
GEORGE HUDDLESTON. ASHTON C. SHALLENBERGER
TILMAN B. PARKS. JACOB L. MILLIGAN.
GEORGE C. PEERY.

Railroad Practice in 1842

[Concluded from page 645 of the *Railway Age*, March 17.]

"REGULATIONS for the transportation department of the Western (Mass.) Railroad" is the title of the small handbook which was noticed under the head of "Railroad practice in 1842" in the *Railway Age* of March 17. As there stated, this is the oldest railroad rule book which has come to our notice. The book in all probability was the work of Major George W. Whistler, the well-known American military engineer, who was prominent in the early nineteeth century and who went to Russia to build a railroad for the Czar.

The introductory rules in this book, together with the 13 rules for conductors, were reprinted in the *Railway Age* as above noted. Herewith, the reader will find the rules for enginemen and other employees, the book ending with a paragraph concerning the duties of the master of transportation, which were apparently about the same as those of the train master of the present day.

Western Railroad Rules, 1842

ENGINEMEN

1. All Enginemen are under the immediate charge of the Master Mechanic, to whose instructions they are required at all times to yield a cheerful and implicit obedience.

2. They are charged with, and held responsible to the Master Mechanic for the good order and proper appearance of their engines, tenders, and all things pertaining to them.

3. They will promptly report all damages to the Master Mechanic, and will assist in all repairs when required by that officer; when not employed on "running duty," their station will be in the machine shop, where they will conform in all respects to its rules.

4. The Enginemen are never to leave the depot without a full tender of water, a sufficiency of oil in the can, six water buckets suspended to the tender, two jack screws, axe, crowbar, shovel, and a full complement of other tools.

5. When the engines are on "running duty" the Firemen are at all times under the immediate direction of the Enginemen, and will of course aid them in all things necessary to prepare the engines for leaving the depot.

6. It is confidently expected that the Enginemen will at all times, by a strict regard to economy in the use of fuel, oil, &c.—and a cheerful compliance with all regulations, evince that interest in the performance of their duties, which is absolutely necessary to their usefulness.

7. It shall be the duty of the Enginemen at all times to be in possession of a time-table; to keep himself thoroughly acquainted with the running regulations of all the regular trains, and whenever he is apprehensive of running into danger, he is to communicate the same to the Conductor with reasons for such apprehension.

BAGGAGE MASTERS

1. The Baggage-master is charged with the receiving and packing into the appropriate cars all baggage belonging to passengers.

2. He will be careful to distinguish between the *way* and *through* baggage.

3. He will not put any cases of merchandize into the baggage car, without permission from the Master of Transportation.

4. All baggage left for safe keeping will be receipted for as per form of certificate, and be delivered only on presentation of the certificate.

5. He is charged with the care and police of the Passenger Depot buildings and yards.

FREIGHT AGENTS

1. It shall be the duty of the Agent to receive all merchandize, &c. which may be brought to his station for transportation, and to receipt for the same, when required, to weigh the same, make out a "way bill" agreeably to printed form, specifying the articles forwarded, to whom they are consigned, and when practicable, the name of the person sending the same; the weight, and the amount of freight charged at the established prices.

2. With the freight forwarded, the way bill must be sent in charge of the Conductor, who must deliver it with the goods to the Agent at the station where they belong.

The way bills must specify the numbers of the Cars in which the goods have been packed.

3. On receiving merchandize, &c. forwarded by the Rail Road, the Agent will carefully compare the contents of the Cars with the way bill, and note all discrepancies; he will collect the freight due for transportation, together with such other expenses as may have accrued beyond the regular charge of the Rail Road—and remit all money thus collected, to the office of the Engineer.

4. In entering all articles for transportation on the way bill at each station, the class to which each belongs must be specified—that is, whether belonging to 1st, 2nd, 3d, or special rates, and the amount carried out as per printed form.

5. This way bill must be copied into a book (in the same form) kept for that purpose at each station, and an exact copy, or duplicate, must be sent to the office of the Engineer.

These duplicates must be sent daily, from Greenbush, Pittsfield, Springfield, and Worcester, and from all other stations weekly.

6. All way bills received with freight at the several stations, must be copied into books kept for that purpose, and the *originals* sent to the office of the Engineer with the duplicate way bills of freight forwarded *from* the station.

7. Whenever an error shall be discovered, in a way bill received at any station, the Agent receiving it will apply direct, and *immediately* to the one who sent it for correction, and the Agent making the correction will immediately report the same to the office of the Engineer—where the correction is also required to be made.

WAY AGENTS

1. Their duty shall be to have at all times, wood sawed, and water in the tank, for the trains.

2. To have the switches properly attended.

3. The Way Agent is charged with the general supervision of the grounds about the Depot buildings. In all cases of accident or delay to the trains, from any cause, he is to render such assistance as may be in his power, or the case may require.

4. He is to be at the Depot whenever a train is to pass, and be ready at all times to receive freight designed for transportation over the road, and also for delivery of such as is received.

5. At the end of every month he shall make report of wood purchased during the month, the amount of wood consumed, and what remains on hand at the end of the month.

6. He shall sell tickets for way stations and to the end of the road each way—remit the money collected with a return (as per printed form) to the office of the Engineer.

7. Copies of all returns made by the Way Agents shall be preserved by them at their respective Depots.

8. The Masters of Transportation may from time to time give such further instructions to the Way Agents as they may find necessary and proper in the arrangement and management of the business of the Road.

MASTER MECHANIC

1. Under the direction of the Master of Transportation at Springfield the Master Mechanic is charged with the immediate superintendence of the Engine House, Car House, and Repair Shops at Springfield, and all things connected with the moving power.

2. Under his direction all repairs of Engines and Cars will be executed, for which purpose and with a strict regard to economy, he will employ a suitable number of hands in the shops of the depot. He will inspect all Engines and Cars before they leave the Depot, that he may be satisfied that all are in perfect order—and that all persons charged with the immediate care of them have performed their duties faithfully. He will establish and preserve usual shop hours, keeping a record of all work done in the shop, distinguishing the kind of work as well as the number of days work in each kind of repairs, and on each particular engine. He will note the time of all absentees with the reasons of their absence, and at the end of each and every month make a report to the Master of Transportation at Springfield of the condition of the moving power, and shall also exhibit the work done in the shops, &c. as per the foregoing instructions.

3. He will be held responsible for all materials and tools used in his department and a strict economy in the use of the former, and of care in the preservation of the latter, is confidently expected of him. On the 1st January and 1st July in each year he will furnish the Master of Transportation at Springfield a list of all materials and tools on hand. He may grant leave of absence to hands under his charge for a time not exceeding one day, if their services are not required in the shop—but for longer periods the leave of absence must be approved by the Master of Transportation.

4. As the Master Mechanic is held responsible for the faithful performance of the duties of all the persons connected with his department, they will be under his immediate direction, and he is fully authorized to discharge any who shall neglect their duties or dispute his authority.

5. On the occurrence of an accident which may have disabled or injured any Engine or Car, he will immediately make an examination of the extent of injury, &c. and report the result to the Master of Transportation at Springfield.

6. He will, when any materials are required for the use of his department, report the nature and amount of the purchase to be made, at the office of the Master of Transportation; and will receive the necessary Pass Book, which he will take to the shop where the purchase is to be made, and there have the materials with the cost entered on it.

7. He is specially charged to use every possible precaution to prevent accident from fire. He will have a large cask kept constantly filled with water in the Car House and Repair Shops, and a good supply of buckets in a conspicuous place in each building. He will visit all the buildings on the premises immediately after the time of shutting up for night, to see that all fires and lights are properly taken care of.

8. He will see that the night-watch is at his post and satisfy himself that he is properly instructed and fully understands his duties. He will instruct the Watchman to ring the bell of the Depot in case of fire.

The MASTERS OF TRANSPORTATION are charged with the general supervision of all the duties of the transportation department in their respective divisions, for which purpose they will visit the way stations at least once a week. They are held responsible for the faithful performance of all the duties of this department, and a strict compliance with the foregoing regulations by all in the employment of the department. And all persons in the employ of this department are required to yield strict obedience to all instructions received from them.

THE "LINDBERGH" is the new name given to a fast freight train operated between St. Louis, Mo., and Mobile, Ala., by the Alabama, Tennessee & Northern and the St. Louis-San Francisco.

Looking Backward

Fifty Years Ago

New York City is at last appreciating the necessity of improving her terminal facilities. The board of aldermen has passed an ordinance granting permission to operate freight cars by steam locomotive over the Belt Street Railroad along the wharves and docks between the hours of 7 p.m. and 4:30 a.m. The New York Central & Hudson River [now the New York Central] will avail itself of this privilege—*Railway Age,* April 18, 1878.

A freight rate war is now going on between the railway running from Chicago and St. Louis to Missouri river points. A series of cuts followed the withdrawal of the St. Louis lines from the Southwestern Rate Association, and now on first class freight per 100 lbs., west bound, the St. Louis roads have dropped from 65 cents to 10 cents, and the Chicago roads from 85 cents to 18 cents. Live stock rates have dropped from $50 per car to $17.50 to St. Louis, and from $67.50 to $20 to Chicago.—*Railway Age,* April 18, 1878.

The Senate has passed the bill extending the charter of the Northern Pacific for 10 years. It provides that the road is to be built eastward from the Columbia river at the rate of 25 miles in the first year and 40 miles annually thereafter, until completed. The road through the passes of the Cascade mountains is to be open for trains of other roads.—*Chicago Railway Review,* April 20, 1878.

Twenty-Five Years Ago

The San Pedro, Los Angeles & Salt Lake [now the Los Angeles & Salt Lake] has purchased the Oregon Short Line branch under construction south of Salt Lake City, Utah, thus ending the competition which threatened the construction of two parallel lines between Salt Lake and southern California. The Oregon Short Line's extension is built from Salt Lake City to Calientes, Nev., 325 miles, and the San Pedro, Los Angeles & Salt Lake is nearly completed from San Pedro harbor, through Los Angeles, to San Bernardino, about 85 miles. —*Railway Age,* April 24, 1903.

It is asserted that work will begin soon on the St. Louis, Brownsville & Mexico [now part of the Gulf Coast lines] which it is proposed to construct from San Antonio, Tex., to Brownsville, 260 miles. The contract for construction has been let to a company in Illinois.—*Railway Age,* April 24, 1903.

Ten Years Ago

The new freight station of the Pennsylvania at Chicago, construction of which is practically completed, has been commandeered by the government for the use of the Quartermaster department for warehouse purposes.—*Railway Review,* April 20, 1918.

President Wilson on April 11 issued a proclamation taking over for the government the property of five steamship lines which operate 63 vessels in coastwise service. In his proclamation he directed that the control and utilization of the steamship lines be exercised through William G. McAdoo, director-general of railroads.—*Railway Age,* April 19, 1918.

While the details of the designs of standard locomotives for the government have not been completed, a tentative specification has been drawn up giving the general dimensions of the 12 locomotives proposed. These have been sent to the railway companies. The 12 designs include two Mikado, two Santa Fe, two Mallet, two Pacific, two Mountain, and two switching types.—*Railway Age,* April 19, 1918.

Communications and Books

Car Utilization

SHAWNEE, OKLA.

TO THE EDITOR:

I have read with much interest the editorial in the *Railway Age* of March 3, concerning the agent's part in car utilization. In this connection I suggest that in order to increase further the miles per car per day that the agents work closer with the trick train dispatcher, because the dispatcher can in many instances manipulate the machinery to increase the movement of cars to a very appreciable extent. To do this, however, he must know the requirements and conditions as far in advance as possible. A little tip from the agents early in the morning and then later on through the day will give the dispatcher a chance to decide what trains can best perform the service. Of course, there are some dispatchers' tricks during which the dispatcher does not have much time to do anything else than handle the trains, but even under these conditions a little time may be found to help move the freight and empties. In this connection it might be well to analyze the results obtained by the trick dispatcher and if warranted, and I know in many cases they will be, arrange his work so that he will have more time to devote to this important matter. When foreign cars are placed in a through freight train it is almost certain that they will be off the division, or delivered to the home line, in from 10 to 24 hours sooner than if picked up by the local. It does not cost any more to pick up a car by one train than another, in fact in some cases it is cheaper to pick up in through trains than by locals because the pay of the crew on local is higher than through freight.

J. L. COSS,
Assistant Chief Dispatcher, Chicago, Rock Island & Pacific.

An Observer Discusses Highway Competition

HUTCHINSON, KAN.

TO THE EDITOR:

The *Railway Age* recently published the complete revenue report of the railways of the United States for the year 1927. It showed that both net and gross revenues in all departments of operation were less than in 1926. The percentage of decrease in net revenue, however, was much less than that in gross revenue, which certainly shows the efficiency which has been applied in the railroad business. While it is generally admitted that there was a recession of business in 1927, especially in the fall and winter months, there are other factors contributing to these decreases in revenues. The most important of these factors is motor coach and truck competition. There are three groups of people who should be especially interested in these revenue statements and in studying the causes and conditions responsible for such decreases.

First, railway employees: The railway employee of today should take stock of himself and of his job. It is true that the railroads of this country broke nearly all records for operating efficiency during the past year, and all of these improvements speak well for the loyalty and efficiency of railway employees. Increased operating efficiency, however, cannot solve the problem of diminished revenue. The greatest problem facing the railroads today is the regulation of motor coach and truck competition. Railway employees should realize, as many of them already do, that it is their problem, too. There are coach drivers earning from $25 to $35 a week who do more actual work than both the conductor and brakeman of many a local passenger train. I will leave it to trainmen what conductors' and brakemen's salaries would average. Then, of course, there are the engineer, the fireman and the baggage clerk, all of whom draw more salary than the coach drivers. No wonder the motor coaches make money while the railroads lose money.

These conditions cannot continue indefinitely. The growth of motor transportation is appalling. People at Colby think nothing of "taking the motor coach" to Denver. They ride them from Hays to Salina, Salina to Manhattan, Manhattan to Topeka, Topeka to Kansas City. The motor coach companies are getting into "long haul" as well as "short haul" business.

The coach and truck business is hardly regulated at all, while the railroads are told what rates they should charge and what wages they must pay, in addition to hundreds of other requirements which railway men know only too well. Consider also the enormous taxes paid by the railroads in comparison to the negligible taxes of the motor transportation companies. This should attract the attention of every railway employee because motor coach and truck wages average lower than railway wages. The railways as a business and the labor unions, as well as seniority, eight-hour day, pensions, and other railway usages, cannot hold their position in the face of the present competition.

What can the railway employee do? He should study for himself the trends above indicated and try to change these conditions. The most effective measure, if used to the fullest extent, is for railway employees to exercise their voting power. Let government officers and legislative bodies know that you favor just regulation of transportation. Railway employees and management should stand together on this issue.

Second, government regulatory bodies: The government, both state and national, should be interested in the fair administration of transportation regulation. I think almost any one will agree that the railroads are regulated from every angle. The motor coaches and trucks, as a rule, have operated on a free lance basis. The railroads need nothing but fairness, but they cannot stand present conditions indefinitely. In justice to the railroads and in consideration of their large property investment some consistent policy should be adopted. If upon investigation or petition train service is really found to be inadequate and highway transportation is needed, the railroads should be given first chance to operate the motor coach line. There are coach lines operating in Kansas that fulfill no real need for service and yet take business away from the railroads. The railroads own, maintain and pay taxes on their right-of-way, while the motor coach and truck lines use public highways which are maintained by every taxpayer. Another phase of this problem is that the large coaches speeding over public roads to compete with railway schedules endanger private conveyances. Inasmuch as railroads are a prolific source of tax revenue, the motor coach and truck transportation companies, since they take business from the railroads, should be made to bear a just share of taxation to keep them on an equal competitive basis with the railroads. Highway transportation fills a need in our business world, but it should not be built up at the expense of the railroads.

Third, railway managers and executives: The increased efficiency of American railroads is due largely to their energetic and wide awake management. The railroads have spent millions in order to provide adequate facilities and equipment. Excepting only where they have been forced to abandon or curtail service for lack of business, the railroads of this country are giving the best service, both passenger and freight, in their history. The traffic departments are on the alert to find new markets for products, and are developing new production areas. The growth of refrigerator transportation is a wonderful example of their work in this direction, and it has added thousands of cars of revenue freight annually.

There are certain phases of railway management which seem hard to understand. For instance, recently the Union Pacific built a palatial new passenger station at Topeka, costing around $150,000. This is a wonderful building and should have a certain advertising value, especially since it is located in the state capital. While in Topeka some time ago, I noticed particularly how the railway passenger traffic there compared to the highway passenger traffic. There were far more passengers arriving and departing at the little uptown motor coach station than at the Union Pacific's wonderful monument. In these days of decreasing passenger revenue it is hard to see how such a building investment can ever pay for itself. It seems to me that if the Union Pacific had spent the same amount of money in buying and operating the stage lines, its passenger revenues

in the Kansas City-Topeka territory would have been increased much more than they will be by the new station.

The railroads could benefit by more extensive use of joint track facilities, because they could give better service and cut down their property investment. With the use of joint track facilities and gasoline cars, there are several passenger lines in Kansas which could be operated to give better service to the public and more profit to the carriers. The competition of today cannot be met with the methods of yesterday. Railroads should forego their private differences and work together to save expenses and increase business.

ONE WHO IS INTERESTED IN THE RAILWAYS.

[The writer of the above letter says, "I am not engaged in the railway business but it has always fascinated me. I read the *Railway Age* regularly at the public library."—THE EDITOR.]

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Eastern Class Rate Investigation—Report Proposed by Howard Hosmer, Attorney-Examiner. Text of proposed report in I. C. C. No. 15879 prescribing basis of maximum reasonable rates in official classification territory that presents much transportation and traffic history of the states and sections specified on p. 7. 165 p. Pub. by U. S. Govt. Print. Off., Washington, D. C., 25 cents.

Model Railway Handbook; A Practical Guide to the Purchase and Installation of a Model Railway, by W. J. Bassett-Lowke. 8th edition containing suggestions that may be helpful to model railway enthusiasts. 135 p. Illustrated. Pub. by Spon & Chamberlain, New York City. $1.25.

Safari, by Martin Johnson. Brief but interesting sidelights on railways in British East Africa and more on solving transportation problems in an extended section which probably won't have railways for some time to come. The distribution of "power," man, animal, and motor, the handling of perishable and fragile "commodities" and the various adventures in attaining the Johnsons' objective are among the features of this unusual book. 294 p. Illustrated. Pub. by G. P. Putnam's Sons, New York City. $5.

Traffic Development, by T. C. Powell. The president of the C. & E. I. points out some essentials. 33 p. Publisher not given, but probably available at offices of Chicago & Eastern Illinois Railway Co., Chicago.

Periodical Articles

The Incandescent Age, by Floyd W. Parsons. A survey of the accepted, and the apparently approaching wonders of our time such as rust-proof steel (p. 72) fire-proofing for wood (p. 77), dry ice (p. 77), and other things that railways can either use or transport. Saturday Evening Post, April 14, 1928, p. 28, 72, 77-78.

Nomadic America's Changing Spending Habits, by Frank E. Brimmer. The things for which motor tourists, principally, will and will not spend money, together with figures as to amounts spent in various sections. Magazine of Business, April 1928, p. 445-447, 468-470.

The Post Office (London) Railway. The first of its kind in the world, this six-and-a-half mile underground, double-track railway has a 2-ft. gauge, and 8 stations. It is designed for a two minute service and has a carrying capacity of 300 ton-miles per hour in each direction. Illustrated. Journal of the Institute of Transport, April 1928, p. 312-316.

Speed and Safety on Railways, by Raymond Carpmael. The "High speed map of Europe" on p. 285 with the accompanying notes of high speed running in regular service in Europe and elsewhere on p. 284-286, together with the safety precautions, the rules and regulations and staff training generally concentrate a great deal of information in a relatively small space. In view of the extension of smoking accommodations at the present time Rule 50 of the Taff Vale Railway of 1853, *for passengers and employees,* quoted on p. 281, indicates the great change from other days. Journal of the Institute of Transport, April 1928, p. 270-295.

Odds and Ends

The boast of the Eckman shops of the Norfolk & Western is Ignatz, the shop cat. Ignatz, among other things, is claimed to be the largest cat in railway service, being 11 in. high and weighing 28 pounds. The general foreman claims that Ignatz has 18 years seniority at Eckman.

A reader of the Chicago Tribune writes in to ask: "How come when you try to buy a berth, that for the lower you pay higher, while the higher you go the lower you pay, so that you will have to sleep higher to pay lower than you would to sleep lower and pay higher?"

In addition to his duty of driving the engines of the Kansas City-Florida Special of the St. Louis-San Francisco, P. O. Freeman is the popular pastor of the Baptist church at Thayer, Mo. One wonders what he says when he smells a hot-box, while the train is already half an hour late.

Col. John Haydock Carroll, who was official host to Queen Marie of Roumania on behalf of the railroads which conducted her tour of the country in 1926, has been notified by the Roumanian minister in Washington that he has been awarded the Order of the Star of Roumania with the grade of commander.

The problem of the disposition of ex-major-league baseball players has always ranked with that of the disposition of used razor blades. One former hero, however, is definitely located in the police department of the Louisville & Nashville. Those railway men who are getting a bit gray about the temples will remember "Rudy" Halswitt, infielder of 20 years ago, who now graces the L. & N. payroll.

Unfair Competition?

Autoists of French West Africa are using the railway right-of-way between Wakar and Saint Louis, five miles, as a highway this winter. The regular road is over an old river bed, which filled with water when the rains began and made the sandy soil practically impassable. The drivers chose the railway route as the better. As there is only one train a day each way over the line, and the autoists watch its schedule, there is no great risk in using the track.

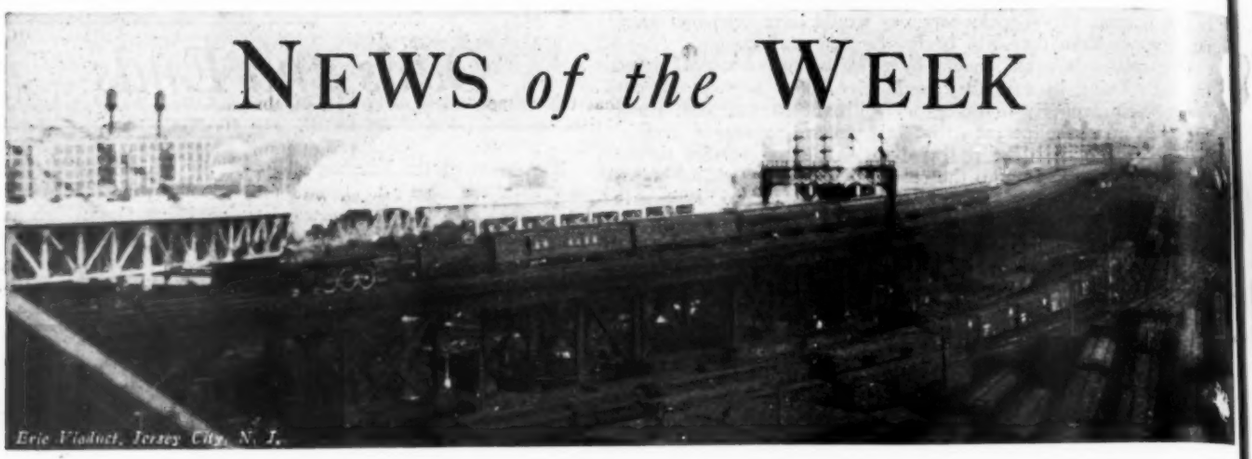
An Added Transportation Service

"Recently a fast train was pulling out of Salina, Kan," says the Kansas City Star, "when the engineer was arrested by the sight of a man on the track frantically waving a shirt. The engineer stopped the train, and inquired the reason for the flagging. It turned out that the man had run his car onto the railroad track and was bumping it along on the ties to jar loose a lot of mud on the tires and fenders. But the car stalled, and when the motorist saw the train bearing down upon him, he doffed his shirt and began to wave. The engineer was pretty mad, but obligingly hitched on the car and dragged it back to a grade crossing where the owner steered it to safety, and after advising the motorist to use a hose and some elbow grease next time he wanted his car cleaned, he climbed into the cab and pulled out."

A Hot Time in Egypt

George Eastman, American kodak king, arrived in Cairo recently clad in an old gray cloth cap, green pajama coat, dress trousers and bath slippers. The whole costume, with the exception of the coat, had been borrowed from fellow passengers on a train from upper Egypt to Cairo. It all happened as a result of an extraordinary accident which befell Egypt's Luxor to Cairo express. Fire broke out in one of the first-class coaches and spread rapidly to the sleeping cars. The sleepers were warned with considerable difficulty, but owing to the fact that the communication cords were burned, the passengers were unable to notify the engine crew. Finally one of the train crew climbed to the roof and crept along to the engine, and the train was stopped. Exciting rescue scenes followed. Passengers were pulled through windows of blazing coaches in their night attire.

NEWS *of the* WEEK



Erie Viaduct, Jersey City, N. J.

THE DATES of the Traveling Engineers' Association convention, which were first fixed for October 2 to 5, inclusive, have been changed to September 25 to 28, inclusive. The convention will be held at the Hotel Sherman, Chicago.

THE AMERICAN SOCIETY FOR TESTING MATERIALS will hold its thirty-first annual meeting at Chalfonte-Haddon Hall, Atlantic City, June 25 to 29 inclusive, a fact of special interest owing to the overlap in dates with the American Railway Association Mechanical Division convention June 20 to 27 inclusive.

A MASKED ROBBER entered an observation-sleeping car of the Overland Limited of the Chicago & North Western shortly after it left the Chicago terminal on the evening of April 16 and compelled four passengers to surrender money and jewelry to the value of $847. After completing the robbery, the bandit pulled the brake cord and when the train stopped he disappeared.

WILLIAM J. CUNNINGHAM, James J. Hill professor of transportation at Harvard, has been engaged by the committee recently appointed by Secretary Hoover of the Department of Commerce to investigate the changes in economic trends since 1919, to make a study of the railroad aspects of the investigation, mechanical and economic, including the relations between the carriers and the public and the competition between railways and other forms of transportation, such as waterways, motor vehicles and airplanes.

Correction

The article on the construction of the Chesapeake & Hocking in the issue of March 31, page 733, states that of 442 highway crossings encountered on the new line, 41 have been separated. The figure 442 is a typographical error and should read 42. There is only one highway grade crossing on the line.

Watson-Parker Bill and Wage Increases

That the Watson-Parker Bill may result in a circle of wage increases for all railroads was suggested by F. W. Sargent, president of the Chicago & North Western, before a stockholders' meeting on April 10. He indicated that the defect in the bill lies in its failure to provide for a central authority over railroad wages, there being a separate board for every complaint and no check on the totals or on the general levels. Although the scale in many branches of service is now above the war-time peak, the separate boards of arbitration may be expected never to refuse the men an increase.

Wage increases granted in 1927 added about $1,600,000 to the wage bills of the North Western during that year, although a portion of the increase was in effect for only part of the year.

Western Railway Club to Discuss Aviation

The annual meeting and dinner of the Western Railway Club will be held in the Grand Ballroom of the Hotel Sherman, Chicago, on Monday evening, May 7, at 6:30 p. m., daylight saving time. The general subject for consideration following the dinner and business session will be "Aviation as a Transportation Agency," the principal speakers being W. P. MacCracken, Jr., assistant secretary for aeronautics, Department of Commerce, Washington, D. C., and T. C. Powell, president of the Chicago & Eastern Illinois. As a part of the entertainment program, the services of the American Broadway quartet have been secured through the courtesy of the Pennsylvania. As the International Railway Fuel Association is scheduled to open its annual convention on the following day, it is anticipated that many members of the latter association will take advantage of the opportunity to be in Chicago one day ahead of schedule and attend this dinner.

Appeal to Supreme Court in O'Fallon Case Postponed

Any chance of having the St. Louis & O'Fallon valuation case argued in the Supreme Court before next Fall has now been removed by an extension of time allowed the company by the federal court at St. Louis postponing from April 9 to May 9 the time for the docketing of the appeal from the decision of the lower court. Arguments before the Supreme Court usually close in April but it is expected a motion may be made to advance the case for hearing early in the October term.

Valuation Hearings

The Interstate Commerce Commission has announced the assignment of several valuation cases, involving some of the larger roads, for oral argument at Washington before Division 1 of the commission as follows: New York, Chicago & St. Louis, April 21; Erie, May 1; Philadelphia & Reading, May 2; Southern, May 3; Seaboard Air Line, May 4; Wabash, May 31; Western Maryland, June 28; and Delaware, Lackawanna & Western, June 30.

THE SEABOARD AIR LINE has petitioned the Interstate Commerce Commission for a modification of the standard time zone order so as to enable it to operate under eastern standard time over that part of its line south of Bainbridge, Ga., thence through Quincy and Tallahassee, Fla., to and including Carrabelle, Fla. This line was acquired from the Georgia, Florida & Alabama, which had been grouped with railroads wholly in the central zone, whereas most of the Seaboard is in the eastern zone.

Safety Section—Month of May

The prevention of eye injuries is the special topic for the attention of safety committees during the month of May as set forth by L. G. Bentley, chairman of the committee on education of the Safety Section, A. R. A., in his latest circular.

"When you reach home tonight, stand in front of the mirror, hand in hand with some loved one, and decide which one, if either, of your eyes, you are willing to give up."

The foregoing is the introductory paragraph of Mr. Bentley's circular, and it is followed by pertinent injunctions concerning the importance of wearing goggles by all persons who are within the eye danger zone, whether in shops or elsewhere. The estimated number of men who are blinded by accident in this country each year is 15,000. The manufacture of goggles has been brought to a high state of efficiency so that no

worker is excusable for neglecting this protection. With proper attention, the wearing of goggles may be made as natural as the wearing of gloves, says Mr. Bentley.

Right of Shipper to Cars Not Absolute

In the bituminous coal strike of 1922 an acute car shortage developed, during which the Midland Valley, like other carriers, distributed its available open top cars among the tipple mines and its box cars among the wagon coal mines. A firm operating a wagon mine in Arkansas refused to accept box cars and brought action for damages in a state court. The railroad contended that the proper distribution of coal cars in time of car shortage was an administrative question for the Interstate Commerce Commission, and that the action would not lie. This objection was overruled and judgment for the plaintiff was affirmed by the Arkansas Supreme Court.

The United States Supreme Court reversed the judgment, holding that the reasonableness of the rule adopted by the railroad, which was the substantial matter in controversy, was a matter for the Commission. "The right of a shipper to cars is not an absolute right, and the carrier is not liable if its failure to furnish cars was the result of sudden and great demands which it had no reason to apprehend would be made and which it could not reasonably have been expected to meet in full. The law exacts only what is reasonable from such carriers." The Court distinguished those cases in which actions at law for failure to furnish cars

(*Continued on page 936*)

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from the Monthly Reports of Revenues and Expenses for 185 Steam Railways, including 16 Switching and Terminal Companies.

FOR THE MONTH OF FEBRUARY, 1928 AND 1927

Item	United States		Eastern District		Pocahontas Region		Southern Region		Western District	
	1928	1927	1928	1927	1928	1927	1928	1927	1928	1927
Average number of miles operated	239,588.27	238,730.61	59,324.10	59,463.93	5,621.05	5,617.01	40,025.23	39,604.11	134,617.89	134,045.56
Revenues:										
Freight	$346,023,518	$354,076,914	$148,629,781	$158,459,134	$17,522,302	$19,325,595	$48,220,715	$50,742,126	$131,650,720	$125,550,059
Passenger	a 69,551,160	b 74,259,452	34,728,377	36,113,947	1,368,356	1,583,829	10,891,952	11,750,577	22,562,475	24,811,099
Mail	7,645,708	7,464,117	2,876,998	2,764,746	198,199	191,738	1,135,416	1,135,337	3,435,095	3,372,296
Express	9,076,933	8,892,671	4,177,917	4,319,604	222,897	214,152	1,223,100	1,195,422	3,453,019	3,159,493
All other transportation	15,250,373	15,350,361	8,504,384	8,567,989	196,006	175,300	933,192	993,667	5,616,791	5,613,405
Incidental	8,366,587	8,845,243	4,210,199	4,530,558	303,047	370,724	1,201,947	1,162,714	2,651,394	2,781,247
Joint facility—Cr.	1,026,704	1,101,296	408,002	436,423	13,224	14,183	129,450	122,399	476,028	528,291
Joint facility—Dr.	347,699	424,649	121,286	132,564	1,669	1,719	30,922	30,717	193,822	259,649
Ry. operat'g revenues	456,593,284	469,565,405	203,414,372	215,059,837	19,822,362	21,873,802	63,704,850	67,075,525	169,651,700	165,556,241
Expenses:										
Maintenance of way and structures	56,359,051	58,782,671	23,717,175	25,126,047	2,931,856	2,917,383	8,800,858	9,369,536	20,909,162	21,369,705
Mainten'ce of equipm't	94,579,226	99,124,504	44,081,965	47,802,297	4,556,458	4,876,501	12,704,990	12,938,806	33,235,813	33,506,900
Traffic	9,947,323	9,632,924	3,699,491	3,519,203	253,393	252,567	1,783,590	1,742,503	4,210,849	4,118,651
Transportation	168,501,363	175,511,119	79,454,392	84,482,575	5,542,277	6,003,528	22,666,987	23,773,826	60,837,707	61,251,190
Miscellaneous operat'ns	4,329,790	4,280,070	2,036,874	2,010,769	81,540	90,105	640.704	604,178	1,570,672	1,575,018
General	15,818,431	15,352,898	7,055,591	7,049,198	610,809	520,306	2,021,785	1,991,091	6,130,246	5,792,303
Transportation for investment—Cr.	1,036,986	840,149	116,050	167,401	25,409	33,963	91,788	141,999	803,739	496,786
Ry. operat'g expenses	348,498,198	361,844,037	159,929,438	169,822,688	13,950,924	14,626,427	48,527,126	50,277,941	126,090,710	127,116,981
Net revenue from railway operations	108,095,086	107,721,368	43,484,934	45,237,149	5,871,438	7,247,375	15,177,724	16,797,584	43,560,990	38,439,260
Railway tax accruals	28,868,557	29,279,925	11,140,606	11,319,429	1,683,532	1,776,363	4,010,250	3,925,320	12,034,169	12,258,813
Uncollectible ry. rev's.	119,205	116,271	65,327	57,462	1,128	2,516	15,674	18,038	37,076	38,255
Ry. operating income	79,107,324	78,325,172	32,279,001	33,860,258	4,186,778	5,468,496	11,151,800	12,854,226	31,489,745	26,142,192
Equip't rents—Dr. bal.	7,242,119	6,828,287	4,029,582	3,877,096	d 526,401	d 467,711	720,693	964,711	3,018,245	2,454,191
Joint facility rent—Dr. balance	1,800,960	1,980,471	865,672	965,536	100,282	101,233	76,585	106,137	758,421	807,565
Net railway operating income	70,064,245	69,516,414	27,383,747	29,017,626	4,612,897	5,834,974	10,354,522	11,783,378	27,713,079	22,880,436
Ratio of expenses to revenues (per cent)	76.33	77.06	78.62	78.97	70.38	66.87	76.17	74.96	74.32	76.78

FOR TWO MONTHS ENDED WITH FEBRUARY, 1928 AND 1927

Average number of miles operated	239,563.23	238,657.26	59,308.56	59,463.15	5,620.98	5,616.99	40,025.04	39,586.32	134,608.65	133,990.80
Revenues:										
Freight	$683,402,863	$712,180,927	$293,300,544	$317,180,032	$35,421,527	$39,985,158	$95,698,442	$101,023,387	$258,982,350	$253,992,350
Passenger	e148,034,690	e160,230,536	74,838,192	79,100,068	2,957,987	3,502,381	22,264,068	24,907,006	47,974,443	52,721,081
Mail	15,463,709	15,335,541	5,799,587	5,719,743	410,146	387,477	2,318,738	2,315,998	6,935,238	6,912,323
Express	17,203,096	17,696,345	7,735,579	8,429,430	427,127	411,731	2,339,439	2,312,294	6,700,951	6,542,890
All other transportation	30,649,443	31,163,848	17,053,220	17,331,504	361,005	363,655	1,859,399	2,009,511	11,375,819	11,459,178
Incidental	17,864,508	19,081,455	9,172,080	9,850,754	640,206	744,005	2,370,884	2,510,952	5,681,338	5,975,744
Joint facility—Cr.	2,123,041	2,337,503	866,548	960,975	23,707	25,073	253,881	292,248	978,905	1,059,207
Joint facility—Dr.	723,088	873,732	259,070	270,788	4,487	4,859	60,532	62,514	398,999	535,571
Ry. operat'g revenues	914,018,262	957,152,423	408,506,680	438,301,718	40,237,218	45,414,621	127,044,319	135,308,882	338,230,045	338,127,202
Expenses:										
Maintenance of way and structures	114,739,748	118,725,029	48,733,483	50,815,558	5,827,759	6,070,171	17,722,028	19,134,693	42,456,475	42,704,607
Mainten'ce of equipm't	192,193,632	205,359,517	89,403,037	99,389,111	9,068,456	10,002,290	25,652,047	26,643,912	68,070,092	69,324,204
Traffic	20,420,770	19,494,613	7,524,623	7,147,973	537,711	495,109	3,752,337	3,594,796	8,606,099	8,256,735
Transportation	345,441,419	367,288,948	162,022,195	177,076,193	11,386,622	12,610,322	46,327,309	49,297,824	125,705,293	128,304,609
Miscellaneous operat'ns	8,977,108	9,108,851	4,261,938	4,330,607	163,458	178,418	1,234,658	1,235,686	3,317,054	3,364,140
General	32,122,403	31,684,623	14,367,637	14,634,712	1,233,697	1,072,238	4,129,533	4,122,720	12,391,536	11,854,953
Transportation for investment—Cr.	1,999,262	1,827,076	284,717	351,817	38,327	52.280	189,739	354,732	1,486,479	1,068,247
Ry. operat'g expenses	711,895,815	749,834,505	326,028,196	353,042,337	28,179,376	30,376,268	98,628,173	103,674,899	259,060,070	262,741,001
Net revenue from railway operations	202.122,447	207.317,918	82,478,484	85,259,381	12,057,842	15,038,353	28,416,146	31,633,983	79,169,975	75,386,201
Railway tax accruals	57,401,454	58,763,267	22,209,293	22,588.869	3,360.882	3,559,126	8,156,540	8,060,923	23,674,739	24,554,349
Uncollectible ry. rev's.	212.101	219,434	113,960	87,066	2.270	4.068	29,171	32,459	66.700	95.841
Ry. operating income.	144,508,892	148.335.217	60,155,231	62.583,446	8.694,690	11,475.159	20,230,435	23,540.601	55,428,536	50,736,011
Equip't rents—Dr. bal.	14,117,627	13,462,617	7,851,336	7,596,551	d 974,117	d 843,292	1,303,680	1,717,805	5,936,728	4,991,553
Joint facility rent—Dr. balance	3,728.666	3,939,921	1,833,931	1,896,139	242,782	195,512	23,179	162,786	1,628,774	1,685,484
Net railway operating income	126,662,599	130,932,679	50,469,964	53,090,756	9,426,025	12,122,939	18,903,576	21,660,010	47,863,034	44,058,974
Ratio of expenses to revenues (per cent)	77.89	78.34	79.81	80.55	70.03	66.89	77.63	76.62	76.59	77.70

a Includes $3,035,688 sleeping and parlor car surcharge. b Includes $2,993,633 sleeping and parlor car surcharge. c Includes $6,328,834 sleeping and parlor car surcharge. d Deficit or other reverse items. e Includes $6,334,158 sleeping and parlor car surcharge.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Operating Statistics of Large Steam Railways—Selected Items for January, 1928, Com

Region, road and year	Average miles of road operated	Locomotive-miles: Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross, Excluding locomotive and tender	Ton-miles (thousands): Net, Revenue and non-revenue	Average number of locomotives on line: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany	1928 407	199,202	212,931	23,552	4,722	64.3	246,652	87,526	108	14	11.5	8
	1927 407	246,236	264,435	30,027	4,739	64.5	255,716	96,390	113	13	10.4	3
Boston & Maine	1928 2,074	448,509	544,979	52,912	11,492	67.4	599,255	226,552	263	60	18.5	11
	1927 2,085	474,818	550,372	45,844	11,649	68.6	603,496	236,082	290	70	19.4	29
N. Y., New H. & Hart	1928 2,140	543,931	592,394	36,640	14,287	65.9	757,284	295,299	317	60	16.0	43
	1927 2,140	583,010	610,332	43,105	14,418	66.6	775,733	317,735	299	85	22.2	8
Great Lakes Region:												
Delaware & Hudson	1928 875	306,725	406,365	47,625	8,457	63.8	519,443	244,273	248	31	11.0	97
	1927 875	361,170	489,393	54,827	9,420	61.5	616,265	300,851	245	36	12.7	73
Del., Lack. & Western	1928 998	509,129	574,234	64,938	15,529	66.1	889,188	374,298	255	51	16.6	14
	1927 999	564,398	651,382	78,397	16,631	66.3	952,745	407,372	261	51	16.4	10
Erie (inc. Chi. & Erie)	1928 2,317	921,265	1,013,432	78,592	34,696	63.1	2,078,719	866,565	438	106	19.5	36
	1927 2,317	999,000	1,114,569	113,735	33,094	63.6	2,062,617	917,197	531	119	18.3	73
Lehigh Valley	1928 1,345	534,954	586,537	68,089	15,610	63.6	922,622	387,006	360	76	17.4	85
	1927 1,346	608,640	669,938	75,287	16,700	62.1	1,021,469	448,881	386	62	13.8	51
Michigan Central	1928 1,822	564,463	592,744	20,608	17,492	58.9	1,007,888	346,218	212	75	26.1	46
	1927 1,820	540,897	563,361	19,354	16,714	60.7	952,956	343,810	252	62	19.7	67
New York Central	1928 6,478	1,996,983	2,229,554	155,550	71,816	60.5	4,437,628	1,871,176	1,111	311	21.9	341
	1927 6,478	2,272,310	2,624,671	195,924	75,683	59.8	4,928,048	2,187,400	1,114	325	22.6	178
New York, Chi. & St. L.	1928 1,665	628,887	639,140	7,249	19,682	62.4	1,107,760	411,488	228	50	18.1	66
	1927 1,665	677,734	684,921	8,476	20,004	62.9	1,142,765	447,401	244	60	19.8	53
Pere Marquette	1928 2,181	385,194	387,819	4,184	9,484	61.5	571,883	242,082	181	36	16.7	34
	1927 2,181	396,820	402,282	5,624	9,539	62.9	572,718	248,236	183	35	15.9	27
Pitts. & Lake Erie	1928 231	118,930	120,140	2,166	3,898	59.5	323,575	179,027	55	17	23.7	13
	1927 231	149,549	151,275	2,795	4,517	61.1	362,023	206,185	57	15	20.5	8
Wabash	1928 2,497	741,282	777,103	12,699	21,727	63.8	1,232,157	465,587	309	58	15.9	67
	1927 2,497	772,418	807,317	12,186	21,350	62.5	1,245,087	476,410	327	61	15.7	48
Central Eastern Region:												
Baltimore & Ohio	1928 5,534	1,896,473	2,235,230	163,754	51,531	60.1	3,483,986	1,623,888	1,036	229	18.1	143
	1927 5,534	2,088,592	2,446,452	198,445	55,424	59.0	3,816,829	1,815,335	1,054	232	18.0	54
Central of New Jersey	1928 691	247,015	266,622	46,198	6,643	57.5	449,972	212,124	186	31	14.1	44
	1927 691	276,342	296,746	51,485	7,024	56.1	485,264	227,329	210	37	15.0	16
Chicago & Eastern Ill.	1928 945	280,340	282,325	3,802	6,616	59.6	440,221	203,201	104	45	30.2	25
	1927 945	327,590	338,589	5,011	7,927	61.7	526,303	256,807	112	45	28.5	14
Clev., Cin., Chi. & St. L.	1928 2,373	764,527	793,851	18,854	21,937	60.1	1,479,384	693,652	342	89	20.6	49
	1927 2,374	790,061	825,909	24,531	21,917	59.2	1,501,895	706,676	349	85	19.6	33
Elgin, Joliet & Eastern	1928 461	142,335	151,567	7,558	3,694	60.8	282,913	146,217	82	9	9.6	...
	1927 461	146,518	156,390	6,869	3,686	59.4	298,438	153,720	81	12	12.8	1
Long Island	1928 396	44,021	47,104	12,002	532	56.1	35,459	13,789	35	8	18.3	...
	1927 393	41,775	44,407	11,975	499	55.4	33,069	12,653	43	10	19.4	...
Pennsylvania System	1928 10,849	3,890,965	4,377,648	384,190	119,236	62.5	7,887,210	3,610,193	2,865	373	11.5	863
	1927 10,887	5,037,888	5,531,567	444,792	132,441	60.4	9,209,488	4,334,542	2,871	419	12.7	267
Reading	1928 1,129	601,392	651,557	61,881	15,319	57.5	1,114,113	550,040	314	81	20.4	45
	1927 1,129	691,896	757,464	72,410	16,797	56.2	1,259,185	635,876	319	73	18.7	17
Pocahontas Region:												
Chesapeake & Ohio	1928 2,717	1,155,047	1,259,075	52,765	35,746	55.7	2,931,770	1,575,400	547	97	15.1	69
	1927 2,651	1,268,240	1,365,371	60,504	39,292	56.1	3,235,122	1,765,401	560	82	12.8	34
Norfolk & Western	1928 2,231	782,850	939,195	32,730	26,278	59.0	2,213,066	1,170,161	533	54	9.2	160
	1927 2,232	925,973	1,132,821	43,800	30,944	59.4	2,619,011	1,450,013	538	59	9.9	92
Southern Region:												
Atlantic Coast Line	1928 5,105	716,430	721,760	12,850	17,643	59.7	1,020,345	390,328	410	62	13.1	79
	1927 4,996	807,666	811,320	14,626	20,335	59.6	1,180,722	454,470	409	56	12.1	55
Central of Georgia	1928 1,898	251,982	253,778	4,759	6,222	70.0	333,537	140,251	142	18	11.1	17
	1927 1,898	301,999	305,726	7,757	7,244	68.9	401,493	174,593	149	16	9.5	12
Ill. Cent. (inc. Y. & M. V.)	1928 6,594	1,973,281	1,988,560	47,970	51,001	61.1	3,423,365	1,488,334	775	112	12.6	22
	1927 6,555	2,012,937	2,025,647	46,562	52,497	61.1	3,503,318	1,543,888	792	99	11.1	16
Louisville & Nashville	1928 5,053	1,694,184	1,774,760	60,548	33,619	58.0	2,362,896	1,134,332	611	104	14.6	35
	1927 5,044	1,810,010	1,888,573	62,951	35,526	59.8	2,473,725	1,216,753	599	116	16.3	6
Seaboard Air Line	1928 4,484	559,841	569,514	10,650	13,544	63.1	775,517	297,244	255	60	19.1	11
	1927 4,198	616,180	629,136	8,724	15,198	62.9	896,123	362,460	244	44	15.2	...
Southern Railway System	1928 6,720	1,363,127	1,386,991	31,329	33,918	66.4	1,875,175	773,397	831	123	12.9	92
	1927 6,718	1,511,443	1,542,088	34,456	35,846	63.0	2,081,280	854,546	845	132	13.5	18
Northwestern Region:												
Chi. & North Western	1928 8,463	1,398,823	1,454,124	23,444	32,776	61.9	1,946,219	771,234	817	119	12.7	167
	1927 8,461	1,539,700	1,597,274	29,878	33,837	60.5	2,055,491	795,161	759	153	16.8	103
Chi., Milw., St. P. & Pac.	1928 11,249	1,624,495	1,747,484	106,732	44,250	64.9	2,594,799	1,111,871	832	133	13.8	188
	1927 11,197	1,604,100	1,711,400	96,318	42,444	64.4	2,486,639	1,080,571	798	192	19.4	158
Chi., St. P., Minn. & Om.	1928 1,724	337,228	367,450	18,929	6,504	63.1	381,291	160,327	156	28	15.1	15
	1927 1,724	322,063	341,564	17,279	6,139	65.5	339,082	141,950	158	34	17.7	...
Great Northern	1928 8,163	714,418	737,769	42,396	22,456	69.5	1,294,727	594,456	552	121	18.0	142
	1927 8,164	714,799	741,031	44,525	21,485	69.6	1,228,251	566,334	566	148	20.7	143
Minn., St. P. & S. Ste. M.	1928 4,358	510,664	524,559	5,533	11,965	67.6	646,653	287,106	216	30	12.1	23
	1927 4,368	512,945	527,561	4,236	11,434	68.2	615,277	274,302	298	33	10.0	25
Northern Pacific	1928 6,413	754,774	799,391	48,185	23,014	72.4	1,265,780	589,696	462	146	24.0	64
	1927 6,510	705,981	742,887	43,499	21,065	73.7	1,141,680	517,487	505	133	20.8	106
Oreg.-Wash. R. R. & Nav.	1928 2,261	193,337	207,550	15,402	5,366	70.3	316,869	148,037	124	19	13.1	5
	1927 2,164	181,636	191,808	16,468	4,779	72.8	272,608	128,472	140	21	13.2	15
Central Western Region:												
Atch., Top. & S. Fe (including P. & S. F.)	1928 10,389	1,526,302	1,649,463	83,691	48,021	65.6	2,796,409	1,046,446	788	145	15.6	202
	1927 10,301	1,910,442	2,048,025	100,980	54,247	59.6	3,407,808	1,268,399	765	167	17.9	84
Chicago & Alton	1928 995	298,401	317,762	3,886	6,870	60.1	431,999	171,857	128	22	14.8	28
	1927 1,022	309,923	336,748	5,212	6,812	58.2	448,550	183,920	138	18	11.8	32
Chi., Burl. & Quincy	1928 9,320	1,578,157	1,644,733	66,366	46,266	61.6	2,840,194	1,307,644	749	171	18.5	36
	1927 9,336	1,557,352	1,626,660	62,239	43,625	60.4	2,725,663	1,251,901	752	226	23.1	25
Chi., Rock I. & Pacific	1928 7,569	1,377,976	1,431,109	13,583	33,583	61.8	1,973,071	766,740	589	113	16.1	111
	1927 7,562	1,381,796	1,437,613	15,242	32,495	62.5	1,858,312	724,891	544	133	19.6	47
Denver & R. G. Wn.	1928 2,547	239,995	283,605	52,670	6,726	65.3	420,392	196,030	230	44	16.0	52
	1927 2,536	236,121	280,750	49,459	6,515	67.2	390,708	183,306	230	41	15.2	44
Oregon Short Line	1928 2,539	307,242	332,000	33,910	8,896	66.5	550,839	244,728	171	26	13.0	33
	1927 2,537	279,329	302,848	31,370	7,915	70.1	472,686	218,295	188	21	10.0	52
So. Pacific—Pacific Lines	1928 8,756	1,379,935	1,492,287	189,306	41,240	64.1	2,514,119	951,142	684	240	26.0	102
	1927 8,724	1,353,755	1,469,086	208,083	40,878	65.5	2,436,915	931,375	691	256	27.1	108
Union Pacific	1928 3,712	898,272	920,161	39,581	33,296	70.9	1,841,434	765,597	429	52	10.9	157
	1927 3,714	807,176	832,394	44,519	29,242	70.7	1,598,731	652,923	475	39	7.5	194
Southwestern Region:												
Gulf, Colo. & S. Fe	1928 1,933	253,650	260,854	6,895	8,170	64.3	490,827	214,888	142	20	12.2	48
	1927 1,933	508,045	549,789	15,591	13,752	56.9	922,834	400,628	160	23	12.4	...
Mo.-Kans.-Tex.	1928 1,787	244,608	246,088	5,269	8,240	59.1	502,509	192,644	100	21	17.0	38
	1927 1,787	255,227	257,486	6,580	8,643	61.7	503,790	196,580	104	22	17.7	39
Mo.-Kans.-Tex. of Texas	1928 1,389	162,148	165,569	3,516	4,532	62.4	262,956	104,455	101	15	12.8	50
	1927 1,389	193,958	198,812	3,574	5,634	60.7	326,766	128,007	118	18	12.9	55
Missouri Pacific	1928 7,369	1,364,723	1,408,309	42,783	38,144	64.9	2,268,155	977,913	571	77	11.9	53
	1927 7,311	1,393,988	1,438,759	45,843	37,961	63.2	2,281,843	981,352	546	75	12.1	2
St. Louis-San Francisco	1928 4,939	757,948	771,704	7,854	17,505	61.1	1,057,983	434,818	396	54	12.0	78
	1927 4,860	770,200	785,202	10,878	17,466	61.0	1,050,719	431,829	417	70	14.4	75
Texas & New Orleans	1928 4,582	744,091	747,343	2,867	15,383	63.4	930,241	377,935	257	61	19.2	33
	1927 4,469	671,682	674,249	2,098	14,935	67.6	853,438	362,448	248	61	19.6	28
Texas & Pacific	1928 2,015	487,052	487,052	4,343	11,939	59.5	758,624	287,605	177	27	13.0	10
	1927 1,954	370,409	370,409	3,052	9,828	61.1	587,236	214,258	157	33	17.3	20

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

pared with January, 1927, for Roads with Annual Operating Revenues above $25,000,000.

Region, road and year	Average number of freight cars on line			Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotive and tender	Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car miles per car-day	Net-ton miles per mile of road per day	Pounds of coal per 1,000 gross ton-mile including locomotive and tender	Locomotive miles per locomotive day
	Home	Foreign	Total										
New England Region:													
Boston & Albany.....1928	4,169	4,384	8,553	4.3	17,470	1,238	439	18.5	330	27.7	6,937	203	62.7
1927	2,828	5,077	7,905	3.1	13,697	1,039	391	20.3	393	30.0	7,639	230	75.1
Boston & Maine.....1928	12,852	9,885	22,737	4.8	15,788	1,336	505	19.7	321	24.2	3,524	141	59.7
1927	15,722	10,439	26,161	6.5	13.685	1,271	497	20.3	291	20.9	3,652	153	53.5
N. Y., New H. & Hart..1928	17,781	14,971	32,752	10.2	18,426	1,392	543	20.7	291	21.4	4,451	135	53.7
1927	20,368	21,190	41,558	17.8	16,434	1,331	545	22.0	247	16.8	4,790	150	54.9
Great Lakes Region:													
Delaware & Hudson.....1928	10,415	4,977	15,392	3.7	20,618	1,694	796	28.9	512	27.8	9,006	161	52.5
1927	9,886	6,306	16,192	4.1	19,470	1,706	833	31.9	599	30.5	11.089	174	62.6
Del., Lack. & Western...1928	19,491	6.134	25,625	4.0	21,781	1,746	735	24.1	471	29.6	12,098	155	67.4
1927	17,192	7,875	25,067	3.7	19.778	1,688	722	24.5	524	32.3	13.150	166	75.5
Erie (inc. Chi. & Erie)..1928	33,584	17,421	51,005	5.1	27,856	2,256	941	25.0	548	34.8	12,066	141	64.8
1927	34,957	21,712	56,669	7.9	23,363	2,065	918	27.7	522	29.6	12,768	149	61 0
Lehigh Valley 1928	23,915	7,787	31,702	8.3	24,033	1,725	723	24.8	394	25.0	9,278	172	48.4
1927	23,101	11,517	34,618	7.1	21,954	1,678	738	26.9	418	25.0	10,760	180	53.7
Michigan Central 1928	24,009	13,510	3/,519	4.0	28,354	1,786	613	19.8	298	25.6	6,130	130	68.9
1927	20,368	18,220	38,588	3.1	25,319	1,762	636	20.6	287	23.0	6,095	133	60.0
New York Central.....1928	78,210	64,689	142,899	4.2	28,769	2,222	937	26.1	422	26.8	9,317	124	54.1
1927	71,201	74,138	145,339	3.2	25,393	2,169	963	28.9	485	28.1	10.892	133	63.3
New York, Chi. & St. L..1928	15,097	9.725	24,822	6.8	24,631	1,761	654	20.9	535	41.0	7,973	120	74.8
1927	13,454	10,222	23,676	5.1	22.204	1,686	660	22.4	610	43.3	8,668	129	73.7
Pere Marquette.....1928	12,362	6,891	19,253	3.8	19,369	1,485	628	25.5	406	25.8	3,581	120	58.1
1927	10,479	7,662	18,141	3.9	17,774	1,443	626	26.0	441	27.0	3,672	126	60.4
Pitts. & Lake Erie.....1928	17,123	5,775	22,898	4.0	30,604	2,721	1,505	45.9	252	9.2	24,971	111	55.1
1927	11,836	9,484	21,320	4.2	26.295	2,421	1,379	45.6	312	11.2	28,736	118	69.2
Wabash 1928	17,951	10,644	28,595	2.4	26,106	1,662	628	21.4	525	38.4	6,015	144	69.3
1927	15,882	11,563	27,445	2.3	23,375	1,612	617	22.3	560	40.1	6,155	152	68.2
Central Eastern Region:													
Baltimore & Ohio.....1928	78,800	26,425	105,225	4.8	20,905	1,837	856	31.5	498	26.3	9.465	167	61.2
1927	70,052	33,476	103,528	3.5	18,926	1,827	869	32.8	566	29.2	10,583	184	66.3
Central of New Jersey...1928	20,333	10.165	30,498	5.7	19,997	1,822	859	31.9	224	12.2	9,903	167	46.7
1927	19,875	13,217	33,092	4.2	16,522	1,756	823	32.4	222	12.2	10,614	189	45.5
Chicago & Eastern Ill...1928	14,024	3,671	17,695	30.3	22,122	1,570	725	30.7	370	20.2	6,935	154	61.7
1927	13,076	4,668	17,744	24.1	20,858	1,607	784	32.4	467	23.4	8,765	162	70.7
Clev., Cin., Chi. & St. L.1928	24,392	19,916	44,308	3.5	25,209	1,935	907	31.6	505	26.6	9,429	139	60.9
1927	17,753	19,977	37,730	4.5	23.502	1,901	894	32.2	604	31.6	9,603	142	63.2
Elgin, Joliet & Eastern...1928	9,273	7,013	16,286	5.4	10,511	1,988	1,027	39.6	290	12.0	10,241	157	56.4
1927	9,267	6,838	16,105	4.2	13,521	2,037	1,049	41.7	308	12.4	10,766	154	56.6
Long Island 1928	1,735	3,962	5,697	1.4	4,552	806	313	25.9	78	5.4	1,124	316	44.1
1927	1,588	4,969	6,557	1.3	4,395	792	303	25.4	62	4.4	1,038	421	34.5
Pennsylvania System 1928	228,024	68.320	296,344	6.1	23,355	2,027	928	30.3	393	20.8	10,734	149	47.4
1927	217,125	84,092	301,217	5.0	19,303	1,828	860	32.7	464	23.5	12,843	155	58.6
Reading 1928	30,339	10,811	41,150	2.3	20,914	1,853	915	35.9	431	20.9	15,716	151	58.3
1927	25,486	17,720	43,206	2.2	19,444	1,820	919	37.9	475	22.3	18,164	176	68.2
Pocahontas Region:													
Chesapeake & Ohio.....1928	34,137	8,802	42,939	3.1	30,244	2,538	1,364	44.1	1,184	48.2	18,707	109	65.7
1927	32,080	12,200	44,280	3.0	27.290	2,551	1,392	44.9	1,286	51.0	21,482	111	71.6
Norfolk & Western.....1928	32,887	6,981	39,868	1.4	38,552	2.827	1,495	44.5	947	36.0	16,916	148	53.4
1927	30,220	8,690	38,910	1.1	35,337	2,828	1,566	46.9	1,202	43.2	20,960	154	63.6
Southern Region:													
Atlantic Coast Line.....1928	26,520	10,156	36,676	5.9	18,786	1,424	545	22.1	343	26.0	2,467	119	50.2
1927	24,193	13,053	37,246	3.1	18,278	1,462	563	22.3	394	29.5	2,934	127	57.3
Central of Georgia.....1928	5,504	4,270	9,774	4.0	18,420	1,324	557	22.5	463	29.3	2,384	150	52.1
1927	5,486	5,142	10,628	3.4	18,505	1,330	578	24.1	530	31.9	2,968	148	61.3
Ill. C. (inc. Y. & M. V.).1928	45,251	18,464	63,715	5.9	23,349	1,735	754	29.2	754	42.3	7,281	147	74.1
1927	43,568	23,958	67,526	4.1	21,736	1,740	767	29.4	738	41.1	7,598	150	75.1
Louisville & Nashville...1928	44,243	16,102	60,345	9.7	16,408	1,395	670	33.7	606	31.0	7,241	167	82.8
1927	45,534	18,870	64,404	8.8	15.374	1,367	672	34.2	609	29.7	7,782	170	88.1
Seaboard Air Line.....1928	17,584	8.585	26.169	5.5	17,226	1,385	531	21.9	366	26.4	2,139	150	59.5
1927	16,321	10,690	27,011	3.8	16,137	1,454	588	23.8	433	28.9	2,785	151	71.7
Southern Railway System.1928	47,255	18,959	66,214	6.1	17,736	1,376	567	22.8	377	24.9	3,712	175	47.9
1927	46,594	19,400	65,994	4.9	17,395	1,377	565	23.8	418	27.8	4,103	178	52.0
Northwestern Region:													
Chi. & North Western...1928	46,662	25.173	71,835	5.4	17,648	1,391	551	23.5	346	23.8	2,940	148	50.9
1927	48,778	26,823	75,601	6.7	16,379	1,335	516	23.5	339	23.9	3,032	164	57.6
Chi., Mil., St. P. & Pac..1928	50,974	20,591	71,565	3.7	20,518	1,597	684	25.1	501	30.7	3,188	151	62.0
1927	54,707	21,857	76,564	5.3	19,070	1,550	674	25.5	455	27.8	3,113	167	58.9
Chi., St. P., Minn. & Om.1928	2,719	9,795	12,514	9.6	13.910	1,131	475	24.7	413	26.6	3,001	151	67.8
1927	3,302	8,815	12,117	14.9	12,952	1,053	441	23.1	378	24.9	2.657	162	60.3
Great Northern 1928	41,721	9,957	51,678	5.4	21,284	1,812	832	26.5	371	20.2	2,349	160	37.4
1927	41,869	10,096	51,965	5.7	19,957	1,718	792	26.4	352	19.2	2,238	161	35.5
Minn., St. P. & S. Ste. M..1928	19,894	5,043	24,937	3.8	15,008	1,266	562	24.0	371	22.9	2,125	130	69.5
1927	19,900	5,177	25,077	3.8	13,852	1,199	535	24.0	353	21.6	2,026	140	51.8
Northern Pacific 1928	37,695	7,299	44,994	7.6	21,422	1,677	781	25.6	423	22.8	2,966	167	44.9
1927	38,524	7,539	46,063	6.5	20,681	1,617	733	24.6	362	20.0	2,564	164	39.8
Oreg.-Wash. R. R. & Nav.1928	8,217	3,525	11,742	6.2	19,241	1,639	766	27.6	407	21.0	2,112	192	50.5
1927	7,629	3,653	11,282	3.8	18,789	1,501	707	26.9	367	18.8	1,915	201	41.7
Central Western Region:													
Atch., Top. & S. Fe (in- 1928	59,258	15,061	74,319	6.7	27.755	1,832	686	21.8	454	31.7	3,249	125	59.9
cluding P. & S. F.)...1927	56,263	20,462	76,725	5.7	24,706	1,784	664	23.4	533	38.2	3,972	132	74.4
Chicago & Alton.....1928	10,879	4,896	15,775	3.7	20,747	1,448	576	25.0	351	23.4	5,571	152	68.9
1927	10,060	5,175	15,235	3.5	16,917	1,447	593	27.0	389	24.8	5,806	182	70.5
Chi., Burl. & Quincy....1928	48,723	19,186	67,909	3.9	23,440	1,800	829	28.3	621	35.7	4,526	142	60.0
1927	49,804	17.682	67,486	3.5	22,331	1,750	804	28.7	598	34.5	4,326	157	55.7
Chi., Rock I. & Pacific..1928	33,720	17,682	51,402	7.0	18,892	1,432	556	22.8	481	34.1	3,268	160	66.4
1927	33,851	19,045	52,896	7.4	16,816	1,345	525	22.3	442	31.7	3,092	172	69.3
Denver & R. G. Wn....1928	11,231	4,262	15,493	3.0	18,253	1,752	817	29.1	408	21.5	2,482	190	39.5
1927	10,902	3,881	14,783	2.3	17.410	1,655	776	28.1	400	21.2	2,332	200	39.4
Oregon Short Line.....1928	9,062	5,485	14,547	3.9	24.073	1,793	797	27.5	543	29.6	3,109	128	60.0
1927	8,101	7,247	15,348	3.0	23,334	1,692	781	27.6	459	23.7	2,775	138	51.6
Southern Pac.-Pac. Lines.1928	37,674	28,360	66,034	6.0	23.737	1,822	689	23.1	465	31.4	3,504	128	58.7
1927	33,842	25,487	59,329	6.0	22,943	1,800	688	22.8	506	33.9	3,444	133	57.1
Union Pacific 1928	21,796	8,593	30,389	10.2	34,156	2,050	852	23.0	813	49.9	6,654	120	64.3
1927	21,722	9,348	31,070	11.9	32,050	1,981	809	22.3	678	42.9	5,671	123	55.0
Southwestern Region:													
Gulf, Colo. & S. Fe.....1928	10,866	4,230	15,096	2.9	27.839	1,935	847	26.3	459	27.2	3,586	104	53.4
1927	11,005	8,816	19,821	3.1	20,504	1,816	789	29.1	652	39.3	6,686	126	100.2
Mo.-Kans.-Tex. 1928	9,541	3,726	13,267	4.2	29,402	2,054	788	23.4	468	33.9	3,477	110	67.4
1927	7,602	4,408	12,010	6.0	26.689	1,974	770	22.7	528	37.6	3,548	114	67.4
Mo.-Kans.-Tex. of Texas.1928	360	9,821	10,181	9.3	21,784	1,622	644	23.0	331	23.0	2,425	104	47.1
1927	228	10.421	10,649	8.9	21,884	1,685	660	22.7	388	28.1	2,972	111	48.1
Missouri Pacific 1928	29,590	17,815	47,405	5.0	22,556	1,662	717	25.6	665	40.0	4,281	138	72.2
1927	27,441	19,019	46,460	5.5	21.009	1,637	704	25.9	681	41.7	4,330	140	77.0
St. Louis-San Francisco..1928	23,143	7,814	30,957	3.8	17.917	1,396	574	24.8	453	29.9	2,840	170	55.9
1927	21,405	10,126	31,531	3.9	17,417	1,364	561	24.7	442	29.3	2,866	180	52.7
Texas & New Orleans...1928	12.677	15.071	27.748	5.3	18.218	1.250	508	24.6	439	28.2	2,661	111	76.1
1927	11.966	15,298	27,264	5.3	17,337	1,271	540	24.3	429	26.2	2,616	115	70.6
Texas & Pacific.....1928	6,712	8,031	14,743	4.9	18,983	1,558	591	24.1	629	43.9	4,604	120	77.9
1927	6,439	6,444	12,883	5.1	21,760	1,585	578	21.8	536	40.3	3,537	114	63.6

News of the Week

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had been entertained, in none of which was the reasonableness of the railroad's practice in controversy. Midland Valley v. Barkley. Decided April 9, 1928. Opinion by U. S. Justice Brandeis

New Parker Bill Hearing

Hearings before the House committee on interstate and foreign commerce on the Parker bill to provide for a plan of regulation of common carrier motor coach operations, which had been begun on April 10, were concluded on April 18, after testimony in support of the bill, although with some amendments, had been given by representatives of the Association of Railway Executives, the National Association of Railway and Public Utilities Commissioners, the American Electric Railway Association, the Bus Division of the American Automobile Association, and several companies operating large number of coaches. Opposition to many features of the bill was expressed by C. C. McChord and LaRue Brown, of counsel for the National Automobile Chamber of Commerce, who opposed the idea of extending rate regulation to motor transportation and also criticised many features of the machinery proposed for utilizing state commissioners as agents of the federal government as unworkable and unconstitutional. A substitute for the Parker bill was presented by Earl Bagby, of the California Transit Company, and George H. Pride, representing the New York Board of Trade and Transportation, argued against any regulation in the present stage of the business except as required for the purpose of insuring protection to the public in the direction of safety.

Objections made by the representatives of the National Automobile Chamber of Commerce were answered in statements by John E. Benton, general solicitor of the National Association of Railroad & Public Utilities Commissioners, S. A. Markel, representing the A.A.A., C. D. Cass, assistant to the managing director of the American Electric Railway Association, and Alfred P. Thom, Jr., general solicitor of the Association of Railway Executives.

Mr. Cass said that the position of the N.A.C.C. was "designedly fault-finding for the purpose of obstructing the legislation" and that it was influenced by the idea that regulatory legislation would narrow the field for the sale of coaches. He said he was authorized to say that the American Short Line Railroad Association was in favor of the bill.

Mr. Thom pointed out that the railroads had already made concessions in the conferences which led to the drafting of the bill but he emphasized that there is one principle for which they have consistently contended and that they believe it to be of vital public interest that due consideration be given to the effect which a proposed motor coach operation would have upon existing transportation agencies, the continued operation of which is important to the communities they serve. The railroads are not opposed to the motor coach as an agency, he said, but believe that the public is entitled to use it. They do contend, however, that due consideration must be given to existing agencies.

Spring Meeting A. S. M. E.

The spring meeting of the American Society of Mechanical Engineers will be held at the William Penn Hotel, Pittsburgh, Pa., May 14 to 17, inclusive. On Monday morning, May 14, there will be a council meeting and a conference of local sections' delegates, followed in the afternoon by simultaneous sessions of the fuels and heat flow and management divisions. The seamless tubing, hydraulic and railroad divisions will meet on Tuesday morning, May 15. The papers to be presented at the railroad session are Locomotive and Freight Car Utilization, by C. B. Peck; Power Brakes and Modern Train Operation, by L. K. Sillcox, and Locomotive Sparks, by L. W. Wallace. A train ride through the plants of the U. S. Steel Corporation has been arranged for Tuesday afternoon.

Following the student branch conference and the simultaneous sessions of the machine shop practice, applied mechanics, glass and engineering education divisions on Wednesday morning, there will be an inspection trip through the plant of the Westinghouse Electric & Manufacturing Company. At the dinner in the evening the Holley medal will be awarded to Elmer A. Sperry. On Thursday, May 17, there will be a joint meeting of the materials handling and management divisions, also meetings of the central station power, alloys and applied mechanics divisions. At the applied mechanics meeting F. Loewenberg will present a paper on Stresses in the Drive System of Three-Cylinder Locomotives. The inspection trip Thursday afternoon will be to the American Window Glass Company, Jeanette, Pa.

Air Brake Association

The program for the annual meeting of the Air-Brake Association to be held in Detroit, Mich., May 1, 2, 3 and 4, at the Book-Cadillac hotel, is as follows:

TUESDAY, MAY 1

9:30 a.m.—Invocation.
9:50 a.m.—Address by F. H. Hardin, assistant to president, New York Central.
10:10 a.m.—Address by H. A. Clark, Soo Lines, president, Air Brake Association.
11:00 a.m.—Triple valve union gaskets—Rubber vs. leather, presented by the Northwest Air Brake Club.
11:30 a.m.—Main reservoirs—Committee report.
2:00 p.m.—Standardization of braking power of freight cars—Committee report.

WEDNESDAY, MAY 2

9:30 a.m.—Yard air plants, presented by the St. Louis Air Brake Club.
10:30 a.m.—Maintenance of steam driven air compressors, presented by the Southeast Air Brake Club.
11:30 a.m.—What is the best material for air brake and air signal piping?—Committee report.
12:00 noon—Welding locomotive air piping by the oxy-acetylene process, presented by the Northwest Air Brake Club.
2:30 p.m.—Relation of the air brake to slack action and shocks in trains, presented by the Pittsburgh Air Brake Club.

THURSDAY, MAY 3

9:30 a.m.—Exclusion of dirt and moisture from passenger brake cylinders—Committee report.
10:30 a.m.—Recommended practice—Committee report.

FRIDAY, MAY 4

9:30 a.m.—Power brakes for automobiles, by H. B. Hukill.

Traffic

The Associated Traffic Clubs of America will hold their sixth annual meeting in San Francisco, Cal., on June 12 and 13.

The Pennsylvania has reduced the running time of the Manhattan Limited, between Chicago and New York, both westbound and eastbound, one hour.

The Western Pacific has enlarged its office at Chicago and has opened an office in the Majestic building, Milwaukee, Wis. The Cincinnati office is now in the Dixie Terminal building; the Cleveland office is in the Terminal tower and the St. Louis office is in the Boatmen's Bank building.

The Interstate Commerce Commission has postponed from May 10 to May 20 the effective date of its recent order prescribing a readjustment of rates on peaches from the South, insofar as it affects rates from North and South Carolina. The commission recently postponed the date as to rates from Georgia.

Beginning April 29, the Boston & Maine's "Flying Yankee," express train between Boston and Portland, 111 miles, is to run through in two hours, 25 minutes; and will run through without a stop, the longest non-stop run in New England. A new train leaving Boston at 7:40 a. m., eastern time, is to be run ahead of the Flying Yankee, eastbound.

The St. Louis-San Francisco estimates that a total of 4,160 carloads of strawberries will be shipped over its lines from the Ozark region between now and June 1. The rapid growth of the strawberry industry in that territory is reflected in the increase in the shipments since 1925. In that year 1,585 carloads of berries were moved by the Frisco.

The Interstate Commerce Commission has announced that the examiner's proposed report in the Eastern Class Rate Investigation has been completed and is being printed and should be ready for service within a few weeks. Following the service of the report the railroad respondents propose to make a traffic test and the date for oral argument will be announced subsequently.

The New York Central will, on April 29, shorten, by about one hour, the running time of the Woolverine express train from New York to Chicago over the Michigan Central and also the Fifth Avenue express from Chicago to New York. Both of these schedules will then be substantially equal to that of the North Shore Limited, which makes the run between New York and Chicago in 20 hours, 50 minutes.

The Interstate Commerce Commission has re-opened for argument the case in which it recently ordered a general readjustment of freight rates on peaches from the South, including both increases

and reductions which it predicated on the Hoch-Smith resolution. Petitions had been filed by the railroads asking that the order be vacated or the date postponed as and also by the Georgia Peach Growers' Exchange and the Georgia Fruit Exchange, asking for a re-opening of the case on the ground that the effect of the order was to increase the rates from Georgia. The commission postponed indefinitely the effective date of the order in so far as it relates to the rates from points in Georgia.

"Constructive" Freight Stations In New York

The Interstate Commerce Commission has announced that a hearing will be held in New York City (65 Liberty Street) on May 16, on complaints which have been made regarding the activities of the railroads in connection with the delivery of freight by truck directly from stations on the west side of the Hudson river to consignees' warehouses in Manhattan. Complaints were made some months since by truckmen alleging that the action of the railroads was unfair to their interests. These complaints have never yet been made the subject of public hearings. The railroads have recently announced new tariffs to go into effect on April 25 under which the "constructive" stations will be abolished. Following this announcement, the Merchants' Association of New York has petitioned the Commission to defer approval of these tariffs until the Association can be heard. The merchants say that the existing practice of carting car load freight direct from the cars to consignees' places of business under tariffs absorbing a part of the cost of the cartage, is an important economy for both carriers and consignees.

Senator Glass Proposes to Qualify Rate Law

Senator Glass of Virginia, who has been one of the critics of the Interstate Commerce Commission's decision in the lake cargo rate case, has introduced in the Senate a bill, S.3922, to provide that in determining the reasonableness of rates the commission "shall consider only (1) the cost to the carrier of the service performed; (2) the value to shippers, travelers, or senders of the service rendered to them; and (3) whether such rates, fares and charges are, when taken in connection with other rates, fares and charges, sufficient to produce the fair return required by Section 15a." The idea apparently is that the commission shall not consider the "economic conditions" of an industry, or part of an industry. Another clause of the bill would provide that the commission shall not prescribe a minimum rate unless such order is necessary to make the rate "reasonably compensatory" for the service, to prevent undue or unreasonable preference, prejudice or advantage, within the meaning of Section 3, or to prevent the placing of an undue burden on any other kind of traffic.

Foreign

Items of foreign railway news of interest, as reported to the Bureau of Domestic and Foreign commerce of the United States Department of Commerce, follow:

Chilean railway car loadings have been heavy during the past two months, owing to the fact that crops were at least 10 per cent above last year.

Revenues of the Central Railway of Brazil during the calendar year 1927 increased to about $21,523,250 from about $19,587,200 during 1926. This government owned and operated railroad shows a deficit each year between income and operating expenses.

The federal government of Mexico is making an attempt to reduce the number of official passes and use of special cars on the National Railways by government officials and officers of the army. A decree of March 19, 1928, provides that all branches of the Government must pay cash for the passage obtained from railway companies, and that special cars will be issued to army officers only on direct orders from the President.

During 1927, 30 electric locomotives on the Swiss Federal Railways were equipped with special devices to insure their safety with one man only in the cab, in this way saving the services of about 55 men. The results obtained have been so satisfactory that the Federal Railways are planning to install 30 additional locomotives of this type about May 15, thus permitting additional economies in personnel.

Carloadings have recently risen to 1,500 cars per day on the Latvian railways and the Railway Administaration is unable to supply the number of cars actually required. It is possible that cars will be leased from Estonia and Lithuania to help relieve the shortage. Transit shipments from Russia and Germany continue heavy and with ice conditions in the Baltic Sea still interfering with navigation, warehouses full and practically no storage space available in which to unload cars, the congestion and car shortage is not apt to be relieved until spring when the ice goes out of the Dvina river.

By order of February 26, 1928, it is provided that the national military factory, or arsenal, at Trubia shall supply the Spanish government railways' demands for rolling stock and other materials. In case the arsenal is able to produce at less than the current price the profit shall accrue to the state railway fund. While the decree applies only to minor lines, many of them narrow-gage, under direct state ownership, and consequently affects but a small fraction of the railway materials sold in Spain, there has been expression of objection to the situation based on the fear that in future it may be extended to include other than state owned roads.

The London & North Eastern is increasing the popularity of the night sailing service which it provides from Harwich, England, to the Hook of Holland, by arrangements that have been made to cater especially to passengers to Switzerland. The German State Railways have agreed to cooperate by providing accommodations in the trains between the Hook of Holland and Switzerland via the Rhine and the Black Forest. The prospect of being able to depart from London at 8:30 p. m. and to arrive at Basel at 6:30 the following evening, appears attractive, as the passengers dislike the broken journey to Switzerland via France. The new service starts on May 15, 1928.

Indian Railways Experience Motor Coach Competition

The Indian railways have begun to feel the pressure of motor coach competition, according to the Railways Administration report for 1926-27. In Bombay, the motor coach services catering to better-class passengers have affected slightly the first and second class traffic of the Bombay, Baroda & Central India. Motor coach competition has been particularly active in and around Calcutta, affecting the East Indian & Eastern Bengal suburban services. The earnings of the Kaliga-Falta Railway in Bengal have been seriously affected in the last two years by motor coaches operating parallel to the railroad right of way. Similarly, the Burdwan-Katwa reports a falling off in passenger traffic as a result of competition from motor coaches along its line. The great Indian Peninsula Railway reports that there are about 36 motor coach services competing for passenger traffic on different parts of the line.

The Madras & Southern Mahratta attributes the decline in its first and second class earnings to the fact that use of private motor cars is increasing.

In the area covered by the North Western Railway, road motor coach traffic is being developed rapidly, especially between Kalka and Simla, Lahore and Amritsar, Amritsar and Batala, around Jullundur, between Kohat and Peshawar, Kohat and Bannu, and along the Khyber Railway.

On the South Indian additional short haul services were introduced between Madras and Conjeevaram on the meter gage to compete with motor coach services. The Travancore Railway and the Rohilkand & Kamaon have put on extra trains. The East Indian, between Katrasgarh and Phulartand, inaugurated on December 1, 1926, an experimental steam rail motor car, the purpose being to serve short haul traffic. Up to March 31, 1927, four trips each direction were made daily and over 6,000 passengers per month carried. It is intended to extend this service.

Other railways are making similar experiments and investigating other means of protecting their business.

Equipment and Supplies

Locomotives

THE CANADIAN PACIFIC is inquiring for 25 Mikado type locomotives.

THE SOUTHERN PACIFIC has ordered 3 Pacific type locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of March 10.

THE CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA has ordered 8 switching locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of March 10.

THE TEXAS & PACIFIC has ordered 5 Mountain type locomotives from the Baldwin Locomotive Works and fifteen 2-10-4 from the Lima Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of April 7.

Passenger Cars

THE ILLINOIS CENTRAL has ordered 10 motor cars and 10 trailers for suburban service from the Pullman Car & Manufacturing Company. These cars will be equipped with roller bearings. Inquiry for this equipment was reported in the *Railway Age* of March 10.

THE NORTH AMERICAN CAR COMPANY is inquiring for 50 express refrigerator cars.

THE DETROIT, TOLEDO & IRONTON is inquiring for 2 combination baggage and mail cars and 2 passenger coaches.

THE NEW YORK, NEW HAVEN & HARTFORD is inquiring for from 50 to 100 steel underframes for passenger cars.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered from the Electro-Motive Company six power plants, Model 148-400 hp., to be installed in existing cars—two power plants to a car. This is in addition to eight power plants Model 120-275 hp. to be installed in new bodies as was reported in the *Railway Age* of April 14.

THE NEW YORK CENTRAL has placed orders for 119 passenger train cars as follows:

No.	Type	Road	Builder
10	Coaches	B. & A.	Pullman
4	Coaches	P. & E.	Pullman
6	Dining	N. Y. C.	Pullman
5	Horse	N. & C.	Pullman
3	Bag. & Mail	Rutland	Standard Steel
3	Pass. & Bag.	B. & A.	Standard Steel
10	M. U. Coach	N. Y. C.	Standard Steel
10	Baggage	N. & C.	Standard Steel
20	Baggage	C.C.C. & St. L.	Am. Car & Fdy.
14	Horse	N. Y. C.	Am. Car & Fdy.
5	Coaches	P. & L. E.	Pressed Steel
30	Milk	N. Y. C.	Company Shops

Inquiry for this equipment was reported in the *Railway Age* of March 24.

THE SOUTHERN PACIFIC is inquiring for 25 coaches, 5 three-compartment coaches, 10 baggage cars and 6 combination baggage and mail cars.

Freight Cars

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC is inquiring for five flat cars.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 500 steel underframes for box cars.

THE BARRETT COMPANY is inquiring for 100 insulated tank cars of 10,000 gal. capacity.

THE PENNSYLVANIA SALT MANUFACTURING COMPANY, Philadelphia, Pa., has ordered from the General American Tank Car Corporation, 2 Class 105 tank cars to be used for the shipping of liquid chlorine.

THE ATLANTIC COAST LINE has ordered 200 phosphate cars from the Tennessee Coal, Iron & Railroad Co. Inquiry for this equipment was reported in the *Railway Age* of March 24.

THE SOUTHERN PACIFIC has ordered 250 automobile cars from the Tennessee Coal, Iron & Railroad Company. Inquiry for this equipment was reported in the *Railway Age* of April 7.

Iron and Steel

THE BOSTON & MAINE is inquiring for 200 tons of steel for a bridge in New Hampshire.

THE CHILEAN STATE RAILWAYS have placed an order for 200 tons of Sandberg Sorbitic steel rails, 100-lb. section, to be rolled and treated by Bethlehem Steel Company.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 500 tons of structural steel for bridge work at Rock Island, Ill., from the Ft. Pitt Bridge Works.

Signaling

THE INTERNATIONAL-GREAT NORTHERN has ordered, from the General Railway Signal Company, material for a mechanical interlocking at Pierce Junction, Tex.

THE ERIE has ordered from the General Railway Signal Company 13 engine equipments for auto-manual train control.

THE ATCHISON, TOPEKA & SANTA FE has ordered from the General Railway Signal Company material for an electric interlocking at Emporia, Kan., 57 working levers.

THE DENVER & RIO GRANDE WESTERN has contracted with the General Railway Signal Company for the installation of automatic block signals, color-light, on its line, double-track, from Soldier Summit, Utah to Colton. This is an addition of seven miles to the signaling which is being installed between Colton and Helper.

Supply Trade

The Southern Wheel Company will remove its Pittsburgh office on April 23, from 1102 Commonwealth building, Pittsburgh, Pa., to West Homestead, Pa.

The Electric Service Supplies Company, Philadelphia, Pa., has combined its offices and warehouse and they are now located at 111 North Canal Street, Chicago.

The **Transportation Equipment Corporation,** Graybar Building, New York, has been appointed sales representative to the railroads of the United States for **A. Allan & Son,** Harrison, N. J., manufacturers of the Allan Red Metal King type packing ring for superheat service.

H. D. Savage, for many years vice-president, has been elected president of the **Combustion Engineering Corporation,** New York, an American subsidiary of International Combustion Engineering Corporation, succeeding Joseph V. Santry, who has resigned. **George T. Ladd,** president of the Ladd Water tube Boiler Company and president of the Heine Boiler Company, has been elected vice-chairman of the board of directors of the Combustion Engineering Corporation. H. D. Savage has been identified with the development of pulverized fuel burning equipment since its very inception and has had considerable experience in the manufacture and sale of power plant equipment. Prior to his entry into the pulverized fuel field, he was the active

H. D. Savage

head of the Ashland Fire Brick Company, in which capacity he participated in the organization of the Refractory Manufacturers' Association and served as its first president. In 1914 he became vice-president of the American Arch Company and, two years later, vice-president of the Locomotive Pulverized Fuel Company. When the Combustion Engineering Corporation purchased the Lopulco Pulverized Fuel Systems in 1920, Mr. Savage became associated with this

organization as the directing head of the pulverized fuel division. In addition to the presidency of Combustion Engineering Corporation, Mr. Savage holds offices in other subsidiary companies of International Combustion Engineering Corporation as follows: President, Dry Quenching Equipment Corporation; president, Combustion Engineering Corporation, Ltd. of Canada; vice-president, Ladd Water Tube Boiler Company; and vice-president, Raymond Brothers Impact Pulverizer Company. Mr. Savage is the author of numerous papers and technical articles.

Charles W. Foss, financial editor of the *Railway Age* has resigned, effective April 16, to become associated with **Adams & Peck,** New York, an investment house specializing in guaranteed and merger railroad stocks. Mr. Foss was born in Boston, Mass., in 1891 and was graduated from Harvard College in 1913, after having completed the regular undergraduate academic work and one year's work in the Harvard Graduate School of Business Administration, including the first part of the railroad transportation course. For a short time after his graduation he was

Charles W. Foss

employed in the paymaster's office of the Boston & Albany; then in the freight traffic department; and finally on special assignment in the office of the general manager of the New York, New Haven & Hartford. In the fall of 1913 he joined the staff of the *Railway Age* as associate editor, and was advanced to the position of financial editor in 1920, remaining in that capacity continuously until the time of his resignation. In addition to his contributions which have appeared regularly in the columns of the *Railway Age*, Mr. Foss has written frequently on railway matters for magazines of general circulation and for the daily press.

Harry Woodhead, has been appointed general manager of the hydraulic pressed steel division of the **Truscon Steel Company,** Youngstown, Ohio, with headquarters in Cleveland.

The **W & B Company,** 1300 E. 92nd street, Chicago, has been organized to manufacture and sell a new electric alloy rolling side bearing for freight cars. **H. F. Wardwell,** has been elected president; **W. A. Spuehler,** vice-president, and **C. Bladin,** sales manager.

W. R. Voorhees & Co., San Francisco, Cal., and Seattle. Wash., are now representing in 15 western states the **Billings & Spencer Company,** Hartford, Conn.

The board of directors of the **United States Steel Corporation** has elected **Thomas W. Lamont** as an alternate member of the finance committee. The board also appointed, effective June 1, two additional vice-presidents. I. **Lamont Hughes,** who now is a vice-president of the Carnegie Steel Company, and **E. P. Thomas,** who now is president of the United States Steel Products Company. Mr. Hughes and Mr. Thomas, under the direction of President Farrell, will have supervision over the operations of the subsidiary companies in the following capacities: Mr. Hughes in respect to manufacturing operations of subsidiaries engaged in the production of iron and steel, and Mr. Thomas in respect to the marketing of iron and steel products of the subsidiaries. The board also ratified the appointment of two additional assistants to the president, **W. A. Forbes** and **Harold L. Hughes.**

The **Hammond Bolt and Nut Company,** Chicago, has been organized to take over the manufacture of bolts and nuts formerly conducted by the Illinois Car and Manufacturing Company. **M. J. McDonough,** vice-president of the Illinois Car and Manufacturing Company has been elected president of the new company. **E. M. Joyce,** assistant to the superintendent of the Illinois Car and Manufacturing Company has been elected vice-president of the Hammond Bolt and Nut Company. **M. L. Hunt,** treasurer and purchasing agent of the old company and **Charles Aaron,** secretary of the old company, will occupy the same positions with the newly formed company.

Obituary

John Penn Brock, general manager of the Lebanon plant of the Bethlehem Steel Company, died suddenly in Rome, Italy, on April 9. Mr. Brock was born September 23, 1879 and graduated from Yale University in 1900. In July, 1903, he entered the service of the Pennsylvania Steel Company at Steelton, where he filled various positions. In February, 1907, he became identified with the American Iron & Steel Manufacturing Company, Lebanon, and served as its vice-president and general manager, and when it was acquired in 1917 by the Bethlehem Steel Company, he was appointed general manager of this and all the steel producing properties in Lebanon and Cornwall, which now constitute the Lebanon plant.

Construction

DENVER & RIO GRANDE WESTERN.—A contract for the construction of water treating plants at Cisco, Utah, at Farnham, at Helper and at Green River has been awarded to the Sterans-Rogers Manufacturing Company, Denver, Colo. The plants will have the following capacities: Cisco, 15,000 gal. of treated water per hour; Farnham, 15,000 gal. per hour; Helper, 30,000 gal. per hour; Green River, 30,000 gal. per hour.

ILLINOIS CENTRAL (Southern Illinois & Kentucky).—A contract for the construction of a water treating plant at Stoneport, Ill., which will have a capacity of 150,000 gal. per day, has been let to Joseph E. Nelson & Sons, Chicago. The plant will be equipped with pumps capable of handling water at the rate of 500 gal. per minute.

MAINE CENTRAL.—This road has awarded a contract for the construction of two steel buildings, involved in the remodeling of the paint shop, construction of a paint store and car shop at Waterville, Me., to the Truscon Steel Company, Boston, Mass. The contract for the construction of brick walls and foundations involved in the project has been awarded to John H. Simonds Company, Portland, Me. The work at Waterville, Me., is expected to involve a total cost of $62,000. This road has authorized the installation of extensions of the second and third sections, to a depth of 90 ft., of its engine house at Bangor, Me. The cost of the work involved is approximately $40,000.

NEW YORK, NEW HAVEN & HARTFORD.—This company has given a contract for the extension of its facilities at Van Nest Shops, New York City, to Babor-Comeau & Co., Inc., New York. The work involves the construction of a brick and steel structure, 106 ft. by 376 ft. Cost of the project will be about $250,000. The company has also awarded a contract to W. V. Polleys Co., East Providence, R. I., for improvements at Fox Point Wharf, Providence, R. I., to replace the office and freight shed occupied by the Merchants & Miners Transportation Company which was destroyed by fire in January. Work will include the erection of a two-story brick and timber building, a one-story shed and a 12-inch brick fire wall at the east end of the latter. The cost of the work involved with be about $40,000.

PENNSYLVANIA.—This railroad has announced that it will make additional improvements at South Philadelphia, which together with the extension and raising of tracks and other improvements that have been under way for the past year, will be known as the South Philadelphia terminal yard. The company let a contract last week as reported in the *Railway Age* of April 14, for the construction of a new coal pier and expects to let a contract soon for two new coal car dumpers, a coal supporting yard and thaw house.

Other improvements planned are new ore handling facilities, two receiving yards, a merchandise classification yard, and round house facilities. Construction will be started on the yard facilities when extensive fills, which are now under way, have been completed.

This company has also announced that an agreement, covering extensive improvements at Newark, is being considered by officials of that city and the railroad. The program, including the construction of a new passenger station on the north side of its tracks and the proposed boulevard on the line of Canal Street, is to be carried out by the road in connection with plans agreed to by officials of the city, the State Highway Department and the Public Service Corporation, providing for adequate street transit facilities. On the completion of the proposed improvements, the railroad company will abandon Manhattan Transfer.

SOUTHERN PACIFIC—(Texas and Louisiana Lines).—Bids have been received by this company for the construction of a one-story brick and concrete freight station at Eagle Pass, Tex. This station, which will replace the old existing structure, will have outside dimensions of 35 ft. by 200 ft.

UNION PACIFIC.—Voters at Cheyenne, Wyo., on April 12 approved the issuance by that city of $200,000 of bonds for the construction of a viaduct over the tracks of the Union Pacific. The railroad will bear half of the total cost.

Form New Canadian Railway at Quebec

At a meeting held in Quebec last week arrangements were completed by a group of financiers for the formation and construction of the Quebec, Saguenay & Chibougamau Railway. This line will open up a new section of what is known as the Lake St. John district, which has been experiencing development in recent years, and will also make accessible the Chibougamau mining district. According to reports, an English group will be identified with financing the new railway company, but it will also have a close connection with the Canadian National and, according to present plans, will link up with it after covering the district that will be served.

Under the charter the company is given wide powers in addition to the railway construction proper. It has authority to construct some 400 miles of standard gage railway, principally in the Lake St. John district. These 400 miles have been divided into three divisions: First, the Quebec division, from a point at or near Quebec City to Chicoutimi, approximately 140 miles; second the Saguenay and Lake St. John division, from a point at or near Herbertville to a point at or near the town of Dolbeau (Mistassini) line, a distance of approximately 40 miles; third, the Chibougamau division, from a point at or near Dolbeau on the Saguenay and Lake St. John division to the Chibougamau mining district, approximately 167 miles.

Financial

ALABAMA GREAT SOUTHERN.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $2,621,764, equivalent to $11.69 per share on the outstanding common and preferred stock. Both issues share alike after 6 per cent has been paid on both. Net income in 1926 was $2,772,462, or $12.36 per share.

Selected items from the income statement follow:

ALABAMA GREAT SOUTHERN

	1927	1926
Average mileage operated	314.99	318.35
RAILWAY OPERATING REVENUES	$10,359,494	$10,599,163
Maintenance of way	1,589,464	1,446,983
Maint'ce of equipment	1,974,576	2,074,152
Transportation	3,156,395	3,190,294
TOTAL OPERATING EXPENSES	7,333,077	7,336,614
Operating ratio	70.79	69.22
NET REVENUE FROM OPERATIONS	3,026,417	3,262,549
Railway tax accruals	700,280	773,201
Equipment rents, Cr.	438,981	401,235
Jt. facility rents, Dr.	156,437	159,770
NET RAILWAY OPERATING INCOME	2,607,308	2,728,463
Non-operating income	625,461	676,755
GROSS INCOME	3,232,769	3,405,218
Rent for leased roads	20,338	19,451
Interest on funded debt	471,597	475,944
TOTAL DEDUCTIONS FROM GROSS INCOME		
NET INCOME	2,621,764	2,772,462
Disposition of net income		
Dividends of 13 per cent on preferred stock	439,445	439,445
Dividends of 13 per cent on ordinary stock	1,017,900	1,017,900
Surplus for year carried to profit and loss	1,164,419	1,315,116

ATLANTIC COAST LINE.—*New Director.*—L. A. Bize has been elected a director in place of the late J. R. Kenly.

ANN ARBOR.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $256,787 as compared with net income in 1926 of $422,964. Selected items from the income statement follow:

ANN ARBOR

	1927	1926
Average mileage operated	293.86	293.86
RAILWAY OPERATING REVENUES	$5,615,112	$5,882,293
Maintenance of way	663,500	626,365
Maint'ce of equipment	1,199,675	1,219,934
Transportation	2,194,564	2,325,431
TOTAL OPERATING EXPENSES	4,332,331	4,445,258
NET REVENUE FROM OPERATIONS	1,282,781	1,437,035
Railway tax accruals	296,784	289,140
Railway operat'g income	985,804	1,147,286
Hire of freight cars, Dr. bal.	198,387	203,569
Joint facility rents, Cr. bal.	70,667	74,342
NET RAILWAY OPERATING INCOME	780,182	969,493
Non-operating income	22,816	17,805
GROSS INCOME	802,998	987,298
Interest on funded debt	433,769	442,985
TOTAL DEDUCTIONS FROM GROSS INCOME	546,211	564,334
NET INCOME	256,787	422,964

BELT RAILWAY COMPANY OF CHICAGO.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $187,200, as compared with $196,777 in 1926. Selected items from the income statement follow:

BELT RAILWAY COMPANY OF CHICAGO

	1927	1926
RAILWAY OPERATING REVENUES	$7,537,961	$7,654,332
Maintenance of way	674,492	740,991
Maint'ce of equipment	808,462	793,545
Transportation	3,374,614	3,491,358
TOTAL OPERATING EXPENSES	5,026,315	5,177,210
Operating ratio	66.68	67.64
NET REVENUE FROM OPERATIONS	2,511,646	2,477,122
Railway tax accruals	574,471	581,217
Railway operat'g income	1,936,765	1,895,905
Equipment rents . . Cr.	53 Dr.	60
J't facility rents, Dr.	467,347	308,536
Non-operating income	Dr. 5,642	35,929
GROSS INCOME	1,931,124	1,931,833
Rent for leased roads	1,635,598	1,654,041
TOTAL DEDUCTIONS FROM GROSS INCOME	1,743,924	1,735,057
NET INCOME	187,200	196,777

BOSTON & MAINE.—*New Director.*—At the annual stockholders' meeting Fairman R. Dick was elected a director in place of Alba M. Ide.

CHESAPEAKE & OHIO.—*Minority Vote Declines.*—At the annual meeting the minority committee voted 38,954 shares, as against 125,000 last year. Directors were re-elected. The joint lease with the New York Central of the Nicholas, Fayette & Greenbrier was approved, as was the proposal to issue a new refunding and improvement mortgage to unify all obligations as they mature in the future—the latter subject to approval by the I. C. C.

CHICAGO & ALTON.—*New Directors.*—James Williams, secretary and treasurer; Harry Scullin, president of the Scullin Steel Company, St. Louis, Mo.; and John J. Mitchell, Jr., of Chicago have been elected directors to succeed V. D. Skipworth, Festus J. Wade and John J. Mitchell, respectively.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $1,566,332, equivalent after allowance for the 4 per cent dividends on the preferred stock, to $13.01 per share on the outstanding common stock. Net income in 1926 was $1,689,640, or $16.09 per share. Selected items from the income statement follow:

CHICAGO, INDIANAPOLIS & LOUISVILLE

	1927	1926
Average mileage operated	650.34	648.09
RAILWAY OPERATING REVENUES	$18,542,197	$18,598,066
Maintenance of way	1,832,247	1,799,734

(*Continued on page 945*)

Annual Report

Atchison, Topeka & Santa Fe Railway System

Office of The Atchison, Topeka and Santa Fe Railway System, No. 5 Nassau Street, New York City.

March 19, 1928.

To the Stockholders:

Your Directors submit the following report for the fiscal year January 1, 1927, to December 31, 1927, inclusive.

Income and Profit and Loss Statement

The following is a summary of the transactions of the System for the years ending December 31, 1926 and 1927:

	1926.	1927.
Operating Revenues	$259,040,315.80	$255,617,824.81
Operating Expenses	168,759,308.22	178,240,266.33
Net Operating Revenue	$90,281,007.58	$77,377,558.48
Railway Tax Accruals	20,986,147.62	19,865,472.88
Uncollectible Railway Revenues	48,390.97	45,081.31
Equipment and Joint Facility Rents	3,167,587.96	2,863,899.80
Net Railway Operating Income	$66,078,881.03	$54,603,104.49
Other Income	6,186,796.24	6,444,856.17
Gross Income	$72,265,677.27	$61,047,960.66
Miscellaneous Tax Accruals	54,545.35	59,862.70
Rent for Leased Roads and Other Charges	323,454.49	*61,037.44*
	$71,887,677.43	$61,049,135.40
Interest on Bonds, including accrued interest on Adjustment Bonds	11,256,182.45	11,295,018.32
Net Corporate Income (representing amount available for dividends and surplus)	$60,631,494.98	$49,754,117.08
From the net corporate income for the year the following sums have been deducted:		
DIVIDENDS ON PREFERRED STOCK—		
No. 58 (2½%) paid Aug. 1, 1927	$3,104,320.00	
No. 59 (2½%) paid Feb. 1, 1928	3,104,320.00	
	$ 6,208,640.00	
*DIVIDENDS ON COMMON STOCK—		
No. 88 (2½%) paid June 1, 1927	$5,810,237.50	
No. 89 (2½%) paid Sept. 1, 1927	5,810,237.50	
No. 90 (2½%) paid Dec. 1, 1927	5,810,237.50	
No. 91 (2½%) paid Mar. 1, 1928	5,810,237.50	
	23,240,950.00	
*Each amount shown includes extra dividend of ¼%.		
California-Arizona Lines Bonds Sinking Fund	20,159.95	
S. F. & S. J. V. Ry. Co. Bonds Sinking Fund	49,068.54	
		29,518,818.49
Surplus carried to Profit and Loss		$20,235,298.59
Surplus to credit of Profit and Loss, December 31, 1926	$245,718,861.56	
Surplus appropriated for investment in physical property	$425,090.03	
Sundry Adjustments	155,226.10	
	580,316.13	
		245,138,545.43
Surplus to credit of Profit and Loss December 31, 1927		$265,373,844.02

"Other Income" consists of interest accrued and dividends received on securities owned, including United States Government securities, interest on bank balances, rents from lease of road and other property, and other miscellaneous receipts.

Capital Expenditures and Reduction of Book Values

The total charges to Capital Account, as shown by the General Balance Sheet at December 31, 1927, aggregated $1,076,256,975.47 compared with $1,048,458,432.18 at December 31, 1926, an increase during the year of $27,798,543.29.

Maintenance

Average maintenance charges, including renewals and depreciation for the years ending December 31, 1927 andd 1926 were as follows:

	1927	1926
Per locomotive	$11,526.91	$10,088.04
Per locomotive mile	.3579	.3267
Per freight car	268.44	260.21
Per freight car mile	.0168	.0170
Per passenger car, including mail and express	2,193.54	2,189.08
Per passenger car mile	.0166	.0178

The foregoing average maintenance charges include a proportion of unlocated expenditures for Maintenance of Equipment charged to Superintendence, Shop Machinery, Injuries to Persons, Insurance, Stationery and Printing, Other Expenses, and Maintaining Joint Equipment.

Maintenance of way and structures expenditures in 1927, averaged $3,393 per mile as compared with $2,859 in 1926.

Comparison of Operating Results

The following is a statement of revenues and expenses of the System for the year ending December 31, 1927, in comparison with the previous year:

	Year ending Dec. 31, 1927	Year ending Dec. 31, 1926	Increase or *Decrease*
OPERATING REVENUES:			
Freight	$193,214,188.03	$196,327,515.44	$ *3,113,327.41*
Passenger	42,695,282.61	44,024,407.25	*1,329,124.64*
Mail, Express and Miscellaneous	19,708,354.17	18,688,393.11	1,019,961.06
Total Operating Revenues	$255,617,824.81	$259,040,315.80	$ *3,422,490.99*
OPERATING EXPENSES:			
Maintenance of Way and Structures	$ 41,813,137.54	$34,656,075.16	$ 7,157,062.38
Maintenance of Equipment	50,838,495.77	47,423,682.56	3,414,813.21
Traffic	5,578,244.79	5,171,494.82	406,749.97
Transportation—Rail Line	75,491,456.84	76,901,304.75	*1,409,847.91*
Miscellaneous Operations	125,643.00	112,313.70	13,329.30
General	6,125,479.70	5,491,465.99	634,013.71
Transportation for Investment—Cr.	*1,732,191.31*	*997,028.76*	*735,162.55*
Total Operating Expenses	$178,240,266.33	$168,759,308.22	$ 9,480,958.11
Net Operating Revenue	$ 77,377,558.48	$ 90,281,007.58	*$12,903,449.10*
Railway Tax Accruals	19,865,472.88	20,986,147.62	*1,120,674.74*
Uncollectible Railway Revenues	45,081.31	48,390.97	*3,309.66*
Railway Operating Income	$ 57,467,004.29	$ 69,246,468.99	*$11,779,464.70*
Equipment Rents—Net—Dr.	2,155,635.57	2,487,611.25	*331,975.68*
Joint Facility Rents—Net—Dr.	708,264.23	679,976.71	28,287.52
Net Railway Operating Income	$ 54,603,104.49	$ 66,078,881.03	*$11,475,776.54*

The following are averages for 1927 compared as with 1926:

The average tons of freight (revenue and company) per loaded car mile decreased from 23.00 to 22.75 or 1.09 per cent.

The average tons of freight (revenue and company) carried per freight-train mile (freight and mixed) increased from 709.70 to 718.85 or 1.29 per cent.

The average freight revenue per freight-train mile decreased from $7.74 to $7.57, or 2.20 per cent.

The average passenger revenue per passenger-train mile decreased from $1.90 to $1.75 or 7.89 per cent.

The average passenger-train revenue per passenger-train mile decreased from $2.51 to $2.37, or 5.58 per cent.

The tons of freight carried one mile (revenue and company, but excluding water ton miles) increased 363,725,690 or 2.02 per cent, while miles run by freight-train cars (loaded and empty) in freight and mixed trains increased 49,924,455, or 4.02 per cent, and the mileage of such trains increased 183,380, or .72 per cent.

The number of passengers carried one mile decreased 46,815,445, or 3.37 per cent, while miles run by passenger-train cars (excluding work) in passenger and mixed trains increased 11,197,805, or 6.06 per cent, and the mileage of such trains increased 1,176,190, or 5.07 per cent.

Taxes

Federal and State and Local tax accruals for the year 1927 aggregate $19,865,472.88, a decrease of $1,120,674.74 as compared with the year 1926. A comparison of these accruals for the two years is presented in the following table:

	1927	1926	Increase or *Decrease*
FEDERAL TAXES:			
Income	$ 7,039,093.54	$ 8,826,575.30	*$1,787,481.76*
Capital Stock	.....	213,965.00	*213,965.00*
Stamp and License	11,980.90	13,294.08	*1,313.18*
Total Federal	7,051,074.44	$ 9,053,834.38	*2,002,759.94*
State and Local	12,814,398.44	11,932,313.24	882,085.20
Grand Total	$19,865,472.88	$20,986,147.62	*$1,120,674.74*

[ADVERTISEMENT]

General

The year 1927 might be called an average one for your Company, outstanding features being lacking. There was an increase in gross ton miles, passenger and freight, of 4.71 per cent; revenue tons miles of freight decreased .41 per cent, and the rate per ton per mile decreased from 1.203 cents to 1.189 cents, or 1.16 per cent, causing a drop in freight earnings of $3,113,327.41. The major crops in its territory, such as wheat, corn, oats, cotton, hay, the sorghums, citrus fruits, and grapes made fair yields, as a whole, although there were variations from very good to very poor in different localities. Prices were rather better than in 1926, especially for cotton, and the general financial condition of rural districts is better than a year ago. Over-production in oil had a strong influence in restricting development in the Panhandle oil field and elsewhere and reduced the traffic of your Company in connection with this industry.

At this time little can be said of the crop outlook. A very large acreage of winter wheat was sown last fall, but until the early part of February there was a deficiency in moisture in western Kansas, western Oklahoma, and a part of western Texas, with some severe cold. Some reduction in yield may have been caused, but recent general precipitation has furnished a satisfactory supply of moisture for the present and with normal conditions to harvest there will be a good yield. With smaller wheat and cotton crops in its territory during 1927 there is a diminished reserve of these commodities to be moved in 1928 compared with a year ago. Such reserves were a substantial help in keeping the volume of traffic in 1927 so well up with the record established the preceding year. In Arizona and California there has been a fair supply of moisture and the crop outlook is favorable, except that citrus fruit has suffered from cold in some districts so that the movement of this commodity in 1928 will be somewhat lighter than in the past year.

Operating expenses show an increase over 1926 of $9,480,958.11 confined chiefly to maintenance accounts. About $1,100,000 is due to wage increases. In maintenance of way and structures the increased expense was $7,157,062.38. This is largely due to a very heavy program for rail renewals. During the year 966 miles of old rail were replaced with new. Of the new rail 605 miles was 110 lb. and 361 miles was 90 lb. This makes 1,606 miles of 110 lb. rail laid in our transcontinental main lines since January 1, 1925, when this weight was adopted as standard for such lines. Maintenance of equipment expense increased $3,414,813.21 over 1926. This was due to three major factors; first, increase in rates of pay; second, the program of modernizing older locomotives and cars; and third, the increase in gross ton miles.

During the year 1927 your Company paid out in pensions to its retired employes $476,200.01, there being 1,080 pensioners on its rolls at December 31, compared with $431,068.92 paid in 1926, and 1,012 pensioners December 31, 1926. The pensioners have an average service of 30 years with the Company. During 1927 death benefits were paid in 383 cases, amounting to $391,816.29 compared with $330,009.41 paid in 1926 in 341 cases. The average length of service in all cases in which death benefits have been paid is 15 years, the average for 1927 being 16 years.

Your Directors take pleasure in expressing their appreciation of faithful and efficient service rendered by officers and employes.

W. B. STOREY,
President.

Illinois Central System

Report of the Board of Directors

To the Stockholders of the Illinois Central Railroad Company:

The Board of Directors submits the following report of the operations and affairs of the Illinois Central Railroad Company for the year ended December 31, 1927, including The Yazoo & Mississippi Valley Railroad Company, the entire capital stock of which is owned or controlled by the Illinois Central Railroad Company. For convenience the two companies are designated by the term "Illinois Central System."

The number of miles of road operated as of December 31, 1926, was		6,573.10
Additions for year:		
Construction of new line—Maxon, Ky., to Fulton, Ky.	40.41	
Various changes due to remeasurement, etc.	.34	
	40.75	
Less—Retirement of line—Timberton Jct., La., to Timberton, La.	1.42	
		39.33
The number of miles operated as of December 31, 1927, was		6,612.43
The average number of miles of road operated during the year was		6,601.82

Income

A summary of the income for the year ended December 31, 1927, as compared with the previous year is stated below.

	1927	1926	Increase + Decrease —
Average miles operated during year	6,601.82	6,435.61	+ 166.21
Railway operating revenues (Table 2)	$182,967,560.02	$186,632,489.54	—$3,664,929.52
Railway operating expenses (Table 10)	141,921,643.80	143,119,861.89	— 1,198,218.09
Net revenue from railway operations	41,045,916.22	43,512,627.65	— 2,466,711.43
Railway tax accruals	11,889,965.08	12,344,721.03	— 454,755.95
Uncollectible railway revenues	53,719.31	47,441.52	+ 6,277.79
Railway operating income	29,102,231.83	31,120,465.10	— 2,018,233.27
Equipment rents—net debit	2,685,561.38	1,573,573.22	+ 1,111,988.16
Joint facility rent—net credit	760,281.33	647,658.89	+ 112,622.44
Net railway operating income	27,176,951.78	30,194,550.77	— 3,017,598.99
Non-operating income	4,372,979.50	4,540,606.30	— 167,626.80
Gross income	31,549,931.28	34,735,157.07	— 3,185,225.79
Deductions from gross income	19,418,060.22	17,584,758.50	+ 1,833,301.72
Income balance transferred to credit of profit and loss	12,131,871.06	17,150,398.57	— 5,018,527.51

Railway Operating Revenues

"Railway Operating Revenues" amounted to $182,967,560.02 this year, as compared with $186,632,489.54 last year, a decrease of $3,664,929.52, or 1.96 per cent. For details of "Railway Operating Revenues" see Table 2.

"Freight Revenue" decreased $2,178,637.48, or 1.50 per cent. There was an increase in the tonnage transported, with a decrease in revenue. This result was due to an increase in the volume of low rate freight, notably bituminous coal, and a decline of moderate proportions in some commodities carrying higher rates this year, as compared with last year. There were no material changes in freight rates during the year. Total tons of revenue freight carried one mile were 16,121,240,173, an increase of 341,670,682, or 2.17 per cent, compared with last year. The average rate per ton per mile was .886 cent, a decrease of .033 cent, or 3.59 per cent, compared with the previous year.

"Passenger Revenue" decreased $1,173,037.34, or 4.15 per cent. The number of passengers carried one mile was 956,033,566, a decrease of 579,838, or 0.06 per cent, compared with last year. The average revenue per passenger per mile decreased .121 cent, or 4.09 per cent. The decrease in "Passenger Revenue" was due to a falling off in passenger traffic, other than Chicago suburban business, as a result of decreased Florida travel, floods in the South and motor competition; this was partly offset by a substantial increase in Chicago suburban traffic due to the electrification of this service.

"Mail Revenue" increased $41,291.37, or 1.59 per cent, due to the increased mileage operated.

"Express Revenue" decreased $258,254.19, or 6.10 per cent, due to a decrease in the volume of express business transported.

There was an increase of $25,959.37, or 1.91 per cent, in other passenger train revenue, consisting of "Excess Baggage," "Parlor and Chair Car," "Milk" and "Other Passenger Train Revenue." There were increased earnings from transportation of milk and the handling of newspapers on trains, partly offset by a decline in revenues from excess baggage and parlor and chair cars, coincident with the decrease in passenger travel.

The decrease of $111,814.13, or 5.11 per cent, in "Switching" and "Special Service Train Revenue" was due to a decrease during the year in these special services.

"Incidental" and "Joint Facility Revenues" decreased $15,415.12, or 0.53 per cent, principally due to a decrease in incidental operating revenue, particularly with respect to dining and buffet service and demurrage.

Railway Operating Expenses

"Railway Operating Expenses" amounted to $141,921,643.80 this year as compared with $143,119,861.89 last year, a decrease

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of $1,198,218.09, or 0.84 per cent. For details of "Railway Operating Expenses" see Table 10.

There was a decrease of $3,152,737.19, or 11.36 per cent, in "Maintenance of Way and Structure Expenses," the details of which will be found in Table 10, on Page 26.

The increase of $762,118.51, or 1.83 per cent, in "Maintenance of Equipment Expenses" was due to increased depreciation charges on account of additional equipment placed in service and equipment retired.

The increase in "Traffic Expenses" of $109,549.06, or 3.10 per cent, was due to increased wages, increased solicitation and increased outlays for printing of tariffs, partly offset by a decrease in advertising expenses.

There was an increase of $627,789.76, or 0.97 per cent, in "Transportation Expenses," due partly to increased mileage operated and partly to increased wages granted several classes of employes.

The decrease of $15,127.65, or 1.20 per cent, in "Miscellaneous Operations" was due to a reduction in expenses of operating dining and buffet service.

"General Expenses" increased $216,122.74, or 4.46 per cent, largely due to increased wages and pension allowances.

The increase in expenses by reason of the decrease of $254,066.68 in "Transportation for Investment—Credit" was due to a decrease in transportation performed in connection with construction work carried on during the year.

Railway Tax Accruals

"Railway Tax Accruals" amounted to $11,889,965.08 this year, as compared with $12,344,721.03 last year, a decrease of $454,755.95, or 3.68 per cent. There was a substantial decrease in Federal income tax, as a result of the decline in taxable income, partly offset by increased State taxes. Taxes for the year were equal to 28.97 per cent of the "Net Revenue From Railway Operations" and exceeded the total dividends paid to stockholders by $1,314,498.58.

Uncollectible Railway Revenues

"Uncollectible Railway Revenues" were $53,719.31 this year as compared with $47,441.52 last year, an increase of $6,277.79.

Equipment Rents—Net Debit

"Equipment Rents—Net Debit" amounted to $2,685,561.38 this year as compared with $1,573,573.22 last year, an increase of $1,111,988.16, due to decreased per diem earnings of System's freight cars on other railroads.

Joint Facility Rent—Net Credit

"Joint Facility Rent—Net Credit" was $760,281.33 this year and $647,658.89 last year, an increase of 112,622.44, largely due to increased use of this System's facilities by tenant companies.

Non-Operating Income

"Non-operating Income" amounted to $4,372,979.50 this year as compared with $4,540,606.30 last year, a decrease of $167,626.80. There was a decrease in "Income From Unfounded Securities and Accounts" of $296,057.30, due to a decrease in interest during construction on capital outlays during the year. "Miscellaneous Non-operating Physical Property" decreased $50,680.71, due to a reduction in the income from track materials leased. Other items of decrease were "Income From Lease of Road," $2,002.31; "Income From Funded Securities," $3,698.67, and "Miscellaneous Income," $13,390.70. These decreases were partly offset by an increase in "Miscellaneous Rent Income" of $170,097.28, covering increased rents for the use of property adjacent to the System lines, an increase in "Income From Capital Advances to Affiliated Companies" of $27,641.16 and an increase in "Dividend Income" of $464.45.

Deductions from Gross Income

"Deductions From Gross Income" amounted to $19,418,060.22 this year as compared with $17,584,758.50 last year, an increase of $1,833,301.72. There was an increase in "Interest on Funded Debt" of $1,422,105.24, due to the inclusion of interest for the entire year on securities issued last year and of interest for portions of the year on securities issued during the current year, less interest on equipment trusts retired, as compared with a part year's interest on securities issued during the previous year, a comparison of which may be made by reference to Table 7 in the report this year and the corresponding table for the previous year. The increase of $402,639.27 in "Rent for Leased Roads" was partly due to an increase in rents of the Alabama and Vicksburg Railway of $178,928.47 and of the Vicksburg, Shreveport & Pacific Railway of $209,197.33, by reason of the operation of these properties by the System for the entire year, whereas in the preceding year such operation dated from June 2. In part the increase was due to increases in rents of the Dubuque and Sioux City Railroad of $14,033.47 and of the Chicago, St. Louis & New Orleans Railroad of $480.00. Other items of increase were "Miscellaneous Rent Deductions," $10,165.68; "Separately Operated Properties—Loss," $6.984.83; "Amortization of Discount on Funded Debt," $13,099.85, and miscellaneous, $3,186.63. These increases were offset in a small measure by decreases aggregating $24,879.78, the major portion of which consisted of "Interest on Un funded Debt," representing a decrease in interest on loans.

Capital Stock and Funded Debt

Preferred Stock with a par value of $2,827,700.00 was converted into Common Stock during the year.

Illinois Central Railroad Company and Chicago, St. Louis & New Orleans Railroad Company Joint First Refunding Mortgage Four and One-Half Per Cent Bonds, Series "C," amounting to $17,350,000.00, were issued and sold in June, 1927. These bonds were issued to replace a like amount of five per cent bonds issued under the same mortgage, which were canceled and retired. Under the terms of the Illinois Central Railroad Company and Chicago, St. Louis & New Orleans Railroad Company Joint First Refunding Mortgage, there were issued $25,000.00 par value of Series "A," or Dollar, Bonds in exchange for £5,000 Sterling Bonds, the equivalent of $24,250.00 of Series "B," or Sterling, Bonds, upon payment of the difference of $750.00.

Illinois Central Equipment Trust Certificates, Series "O," amounting to $8,460,000.00 were issued and sold in September, 1927.

Illinois Central Railroad Company Fifteen-Year Five and One-Half Per Cent Secured Gold Bonds in the amount of $16,000,000.00 were called for redemption July 1, 1927.

There were retired and canceled under the terms of the respective trust agreements Illinois Central Equipment Trust, Series "E," $550,000.00; Series "F," $737,000.00; Series "G," $324,000.00; Series "H," $217,000.00; Series "I," $443,000.00; Series "K," $863,000.00; Series "L," $616,000.00; Series "N," $311,000.00; Government Equipment Trust No. 33, $647,100.00, and, under the equipment agreement with The Pullman Company, $175,322.40; a total of $4,883,422.40.

Securities Owned

United States Second Liberty Loan Four and One-Quarter Per Cent Bonds of 1927-42 of the par value of $5,270,000.00 were surrendered for redemption, and there was received in lieu thereof a like amount of Three and One-Half Per Cent Treasury Notes, Series "A," of 1930-32.

The Peoria & Pekin Union Railway Company redeemed $15,000.00 par value of its Five Per Cent Debenture Bonds maturing November 1, 1927.

The Chicago & Illinois Western Railroad redeemed $32,633.33 par value of its equipment trust certificates in two equal installments maturing February 1, 1927, and August 1, 1927, respectively.

Additions and Betterments—Expenditures:

There was expended during the year for "Additions and Betterments" (including improvements on subsidiary and lessor properties) $18,425,895.41. The following is a classified statement of these expenditures:

ROAD:	Total Expended
Engineering	$ 656,751.69
Land for transportation purposes	385,457.78
Grading	2,097,535.62
Tunnels and subways	1,153,975.85
Bridges, trestles and culverts	777,133.00
Ties	588,485.88
Rails	671,847.60
Other track material	824,208.07
Ballast	308,830.76
Track laying and surfacing	488,155.47
Right-of-way fences	38,907.77
Snow and sand fences and snow sheds	202.40
Crossings and signs	944,828.16
Station and office buildings	780,166.91
Roadway buildings	25,130.13
Water stations	72,180.84
Fuel stations	272,559.73
Shops and enginehouses	394,802.00
Grain elevators	104,734.88
Storage warehouses	1,104.01
Wharves and docks	14,836.81
Telegraph and telephone lines	136,681.80
Signals and interlockers	311,747.58
Power plant buildings	467,079.57
Power transmission systems	Cr. *21,361.55*
Power distribution systems	453,675.19
Power line poles and fixtures	58,026.85
Underground conduits	48,458.72
Miscellaneous structures	Cr. *65,184.66*

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Paving	Cr. 3,944.78
Roadway machines	22,051.00
Roadway small tools	2,220.45
Assessments for public improvements	400,084.75
Other expenditures—Road	Cr. 4,992.24
Shop machinery	943,271.49
Power plant machinery	888,480.59
Power substation apparatus	Cr. 737.55
TOTAL	$14,237,392.57
EQUIPMENT:	
Steam locomotives	$ 220,924.99
Other locomotives	7,643.85
Freight train cars	4,310,203.96
Passenger train cars	Cr. 511,168.61
Motor equipment of cars	15,866.34
Floating equipment	Cr. 1,141.59
Work equipment	Cr. 106,858.90
Miscellaneous equipment	12,707.28
TOTAL	$ 3,948,177.32
GENERAL:	
Organization expenses	$ 87.17
General officers and clerks	30,520.51
Law	50,356.99
Stationery and printing	485.61
Taxes	4,883.75
Interest during construction	153,991.49
TOTAL	$ 240,325.52
GRAND TOTAL	$18,425,895.41

Illinois Central System Condensed General Balance Sheet
December 31, 1927, and Comparison with December 31, 1926

ASSET SIDE	December 31, 1927	December 31, 1926	Increase + Decrease —
INVESTMENTS:			
Road and equipment to June 30, 1907	$169,510,131.34	$169,510,131.34	
Road and equipment since June 30, 1907	283,673,041.83	274,660,534.39	+$ 9,012,507.44
Total road and equipment	$453,183,173.17	$444,170,665.73	+$ 9,012,507.44
Miscellaneous physical property	$ 1,919,796.27	$ 2,046,266.19	—$ 126,469.92
Investments in affiliated companies:			
Stocks	$ 38,059,477.08	$ 38,059,477.08	
Bonds	18,810,208.10	18,857,841.43	—$ 47,633.33
Notes	1,000,000.00	1,000,000.00	
Advances	171,440,275.38	162,060,699.49	+ 9,379,575.89
	$229,309,960.56	$219,978,018.00	+$ 9,331,942.56
Other investments:			
Stocks	$ 51,051.00	$ 51,051.00	
Bonds	63,939.49	5,384,792.61	—$ 5,320,853.12
Notes, advances, etc.	6,212,199.48	1,208,775.26	+ 5,003,424.22
	$ 6,327,189.97	$ 6,644,618.87	—$ 317,428.90
Total investments	$690,740,119.97	$672,839,568.79	+$17,900,551.18
CURRENT ASSETS:			
Cash	$ 6,802,926.99	$ 6,679,809.27	+$ 123,117.72
Special deposits	2,351,151.67	892,596.81	+ 1,458,554.86
Loans and bills receivable	1,990,634.11	13,544,474.58	— 11,553,840.47
Traffic and car-service balances receivable	2,547,197.76	2,738,151.44	— 190,953.68
Net balance receivable from agents and conductors	3,696,709.32	3,786,632.94	— 89,923.62
Miscellaneous accounts receivable	10,164,646.17	9,916,643.80	+ 248,002.37
Material and supplies	13,846,889.93	13,915,274.82	— 68,384.89
Interest and dividends receivable	674,026.62	251,033.54	+ 422,993.08
Total current assets	$ 42,074,182.57	$ 51,724,617.20	—$ 9,650,434.63
DEFERRED ASSETS:			
Working fund advances	$ 77,580.55	$ 45,881.83	+$ 31,698.72
Other deferred assets	2,527,576.99	2,211,285.10	+ 316,291.89
Total deferred assets	$ 2,605,157.54	$ 2,257,166.93	+$ 347,990.61
UNADJUSTED DEBITS:			
Discount on funded debt	$ 6,721,481.06	$ 6,569,423.30	+$ 152,057.76
Other unadjusted debits	4,158,619.80	4,136,910.84	+ 21,708.96
Total unadjusted debits	$ 10,880,100.86	$ 10,706,334.14	+$ 173,766.72
Grand Total	$746,299,560.94	$737,527,687.06	+$ 8,771,873.88

LIABILITY SIDE	December 31, 1927	December 31, 1926	Increase + Decrease —
STOCK:			
Common stock	$132,009,300.00	$129,181,600.00	+$ 2,827,700.00
Less: Held in treasury	208.33	208.33	
Total common stock outstanding	$132,009,091.67	$129,181,391.67	+$ 2,827,700.00
Preferred stock, series "A"	22,436,100.00	25,263,800.00	— 2,827,700.00
Premium on capital stock	138,754.53	138,754.53	
Total stock outstanding	$154,583,946.20	$154,583,946.20	
GOVERNMENTAL GRANTS:			
Grants in aid of construction	$ 9,150.87	$ 8,968.70	+$ 182.17
LONG-TERM DEBT:			
Funded debt	$430,430,672.02	$442,853,344.42	—$12,422,672.40
Less: Owned within the system (Table 7)	58,295,000.00	75,645,000.00	— 17,350,000.00
Total long-term debt outstanding (Table 7)	$372,135,672.02	$367,208,344.42	+$ 4,927,327.60
CURRENT LIABILITIES:			
Traffic and car-service balances payable	$ 3,412,687.78	$ 4,283,937.60	—$ 871,249.82
Audited accounts and wages payable	19,489,620.22	22,733,184.06	— 3,243,563.84
Miscellaneous accounts payable	969,748.64	1,383,399.21	— 413,650.57
Interest matured unpaid	1,685,849.32	1,933,228.88	— 247,379.56
Dividends matured unpaid	49,872.80	48,939.55	+ 933.25
Funded debt matured unpaid	1,113,851.70	14,041.70	+ 1,099,810.00
Unmatured dividends declared	2,983,070.75	3,018,354.50	— 35,283.75
Unmatured interest accrued	2,838,124.18	2,856,306.13	— 18,181.95
Unmatured rents accrued	486,103.40	397,417.76	+ 88,685.64
Other current liabilities	247,256.52	241,939.61	+ 5,316.91
Total current liabilities	$ 33,276,185.31	$ 36,910,749.00	—$ 3,634,563.69
DEFERRED LIABILITIES:			
Other deferred liabilities	$ 4,558,641.81	$ 4,381,917.26	+$ 176,724.55
Total deferred liabilities	$ 4,558,641.81	$ 4,381,917.26	+$ 176,724.55
UNADJUSTED CREDITS:			
Tax liability	$ 5,941,297.76	$ 6,491,916.93	—$ 550,619.17
Insurance reserve	3,320,975.60	3,304,278.21	+ 16,697.39
Accrued depreciation—Equipment	64,616,997.35	57,386,350.20	+ 7,230,647.15
Other unadjusted credits	7,938,884.35	7,324,658.15	+ 614,226.20
Total unadjusted credits	$ 81,818,155.06	$ 74,507,203.49	+$ 7,310,951.57
CORPORATE SURPLUS:			
Additions to property through income and surplus	$ 10,219,621.78	$ 10,185,759.35	+$ 33,862.43
Profit and loss (Table 3)	76,344,780.40	76,387,391.15	— 42,610.75
Total corporate surplus	$ 86,564,402.18	$ 86,573,150.50	—$ 8,748.32
As this consolidated balance sheet excludes all intercompany items, securities of The Yazoo & Mississippi Valley Railroad Company owned by the Illinois Central Railroad Company and its subsidiaries are not included. The difference between the par value of such securities as carried on the books of The Yazoo & Mississippi Valley Railroad Company and the amount at which the securities are carried on the books of the Illinois Central Railroad Company is entered here to balance	$ 13,353,407.49	$ 13,353,407.49	
Grand Total	$746,299,560.94	$737,527,687.06	+$ 8,771,873.88

The foregoing statement includes $9,413,387.97 advanced during the year for additions and betterments to the properties of subsidiary and lessor companies as follows:

Baton Rouge, Hammond & Eastern R. R. Co.	$ 30,244.25
Benton Southern R. R. Co.	17,002.99
Blue Island R. R. Co.	89,871.15
Canton, Aberdeen and Nashville R. R. Co.	13,113.80
Chicago, St. Louis & New Orleans R. R. Co.	4,366,020.09
Chicago, Memphis & Gulf R. R. Co.	13,815.68
Dubuque and Sioux City R. R. Co.	449,829.46
Golconda Northern Ry.	Cr. 3,139.72
Kensington and Eastern R. R. Co.	52,747.17
South Chicago R. R. Co.	53,269.39
Southern Illinois and Kentucky R. R. Co.	4,412,445.75
TOTAL SUBSIDIARY COMPANIES	$ 9,495,220.01
The Alabama & Vicksburg Ry. Co.	Cr. 84,464.04
Vicksburg, Shreveport & Pacific Ry. Co.	2,632.00
TOTAL LESSOR COMPANIES	Cr.$ 81,832.04
GRAND TOTAL	$ 9,413,387.97

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General Remarks

Unprecedented floods, due to the overflow of the Mississippi River and its tributaries, occurred during April and the early part of May, causing considerable damage to property and entailing much privation and suffering among inhabitants of the flooded districts. This System participated actively in the relief work, furnishing a large number of relief trains and placing equipment at various points for the temporary housing of refugees and their effects. The System also sustained serious losses to its own properties in the flooded areas and, in addition, incurred substantial losses in revenue due to the temporary suspension of business in the territory affected. The particular properties thus affected, more or less seriously, were those of the Greenville Division of The Yazoo & Mississippi Valley Railroad, train service on some portions of which was discontinued for 108 days, and the Vicksburg, Shreveport & Pacific Railway line, portions of which were out of operation for forty-one days.

There are included in the current year's report the results of operating the Alabama and Vicksburg and the Vicksburg, Shreveport & Pacific railways for the entire year, whereas in the 1926 report the operations of these lines were included for only approximately seven months, beginning June 2.

The number of stockholders of record at the close of the year was 22,209, of whom 15,789 were holders of common shares and 6,420 were holders of preferred shares. There were 23,471 stockholders at the close of the previous year.

The Board of Directors takes pleasure in expressing its appreciation to the officers and employes for their loyal and efficient service.

L. A. Downs, President.

By order of the Board of Directors.
C. H. Markham, Chairman.

[Advertisement]

Financial News

(*Continued from page 940*)

Maint'ce of equipment	3,927,455	3,867,302
Transportation	6,751,142	6,621,311
Total Operating Expenses	13,571,861	13,327,121
Operating ratio	78.05	77.33
Net Revenue From Operations	4,970,336	5,270,945
Railway tax accruals	899,593	1,055,470
Railway operat'g income	4,068,105	4,212,721
Equip't rents, net Dr.	571,832	546,920
Joint facility rents, net Dr.	673,564	686,661
Net Railway Operating Income	2,822,709	2,979,140
Non-operating income	172,997	118,489
Gross Income	2,995,706	3,097,628
Rent for leased roads	38,957	40,826
Interest on funded debt	1,374,584	1,350,266
Total Deductions From Gross Income	1,429,374	1,407,989
Net Income	1,566,332	1,689,640

Chicago & Western Indiana.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $480,317, as compared with $644,318 in 1926. Selected items from the income statement follow:

Chicago & Western Indiana

	1927	1926
Railway Operating Revenues	$332,550	$372,299
Maintenance of way	27,481	23,947
Maint'ce of equipment	197,460	280,781
Transportation	191,613	211,865
Total Operating Expenses	445,698	545,334
Operating ratio	134.02	146.48
Net Revenue From Operations	Dr. 113,149	Dr. 173,035
Railway tax accruals	638,857	649,290
Equipment rents, Cr.	115,527	308,538
J't facilty rents, Cr.	2,349,282	2,322,560
Non-operating income	4,585,900	4,886,936
Gross Income	4,472,752	4,713,901
Rent for leased roads	48,675	48,675
Interest on funded debt	3,201,297	3,274,800
Total Deductions From Gross Income	3,992,434	4,069,583
Net Income	480,317	644,318

Denver & Rio Grande Western.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $1,992,806, as compared with net income in 1926 of $3,346,203. Selected items from the income statement follow:

Denver & Rio Grande Western

	1927	1926
Average mileage operated	2,552.69	2,562.93
Railway Operating Revenues	$33,121,169	$34,030,309
Maintenance of way	6,748,481	5,899,265
Maint'ce of equipment	6,106,950	6,242,158
Transportation	10,079,155	10,304,180
Total Operating Expenses	25,079,216	24,614,314
Operating ratio	75.72	72.33
Net Revenue From Operations	8,041,953	9,415,995
Railway tax accruals	2,380,000	2,430,000
Railway operat'g income	not shown	6,981,822
Equipment rents, Cr.	409,279	335,224
Joint facility rents, net Cr.	326,897	292,755
Net Railway Operating Income	6,391,040	7,609,801
Non-operating income	81,217	95,868
Gross Income	6,606,087	7,843,350
Available for interest	6,472,257	7,705,669
Interest and sinking funds *	4,479,451	4,359,466
Net Income	1,992,806	3,346,203

* Excludes $1,490,400 interest on general mortgage.

Delaware, Lackawanna & Western.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $15,707,772, equivalent to $9.30 per share on 1,688,822 shares of stock. Net income in 1926 was $17,913,201, or $10.60 per share. Selected items from the income statement follow:

Delaware, Lackawanna & Western

	1927	1926
Railway Operating Revenues	$84,685,831	$88,804,745
Maintenance of way	8,110,090	8,581,206
Maint'ce of equipment	14,636,512	16,342,981
Transportation	33,065,027	33,095,084
Total Operating Expenses	60,183,061	62,377,489
Net Revenue From Operations	24,502,770	26,427,256
Railway tax accruals	7,457,093	7,671,404
Railway operat'g income	17,033,436	18,746,352
Equip't rents, net Cr.	230,990	448,729
net Cr.	133,674	136,829
Joint facility rents, net Cr.	133,674	136,829
Net Railway Operating Income	17,398,099	19,331,910
Non-operating income	5,294,953	5,643,804
Gross Income	22,693,052	24,975,714
Rent for leased roads	6,962,236	6,993,306
Interest on funded debt	5,856	5,856
Total Deductions From Gross Income	6,985,280	7,062,513
Net Income	15,707,772	17,913,201
Disposition of net income		
Dividends declared	11,821,754	11,821,754
Investment in physical property		692,196
Total appropriations	11,821,754	12,513,950
Surplus for year carried to profit and loss	3,886,018	5,399,251

Lehigh & Hudson River.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $615,852 as compared with net income in 1926 of $731,135. Selected items from the income statement follow:

Lehigh & Hudson River

	1927	1926
Railway Operating Revenues	$3,362,338	$3,567,884
Maintenance of way	444,480	422,464
Maint'ce of equipment	521,201	465,028
Transportation	1,186,597	1,281,927
Total Operating Expenses	2,298,799	2,343,112
Operating ratio	68.4	65.7
Net Revenue From Operations	1,063,540	1,224,772
Railway tax accruals	199,699	203,787
Railway operat'g income	863,102	1,020,984
Equipment rents, Dr.	162.845	203,642
J't facility rents, Dr.	151,395	145,554
Non-operating income	67,579	59,932
Gross Income	930,681	1,080,917
Total Deductions From Gross Income	314,828	349,782
Net Income	615,852	731,135

Louisville & Nashville.—*New Director.*—at the annual meeting of stockholders at Louisville, Ky., on April 4, Edward S. Jouett, vice-president and general counsel, was elected a director to succeed J. R. Kenly, president of the Atlantic Coast Line, who died on March 1.

Louisville & Nashville.—*Bonds.*—The Interstate Commerce Commission has authorized this company to authenticate and deliver to its treasury $49,503,000 of first and refunding bonds, series C, to reimburse itself for additions and betterments. The bonds will be dated August 1, 1921, and will bear interest from October 1, 1924, maturing April 1, 2003. After October 1, 1931, thy will be redeemable at 105 plus accrued interest.

New York, New Haven & Hartford.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $10,432,661, equivalent after 3 months' dividends on the new 7 per cent preferred stock, to $6.11 per share on the outstanding common stock.

Net income in 1926 was $8,243,112. Selected items from the income statement follow:

New York, New Haven & Hartford	1927	Increase or Decrease
Average mileage operated	2,174.58	
Railway Operating Revenues	$139,824,315	—$3,184,483
Maintenance of way	19,050,871	—80,458
Maint'ce of equipment	26,694,508	—3,350,621
Transportation	47,409,755	—1,543,478
Total Operating Expenses	100,278,252	—4,829,299
Operating ratio	71.72	
Net Revenue From Operations	39,546,063	1,644,815
Railway tax accruals	6,435,364	727,547
Railway operat'g income	33,091,660	912,608
Equipment rents, Dr.	3,287,638	449,398
J't facility rents, Dr.	4,568,737	4,297
Net Railway Operating Income	25,235,284	458,913
Non-operating income	3,604,089	510,535
Gross Income	28,839,373	969,448
Rent for leased roads	2,722,556	—28,156
Interest on funded debt	15,135,193	—564,616
Total Deductions From Gross Income	18,406,711	—611,138
Net Income	10,432,661	1,580,587

Pennsylvania.—*Directors.*—The nominating committee has named Charles E. Ingersoll, Samuel Rea and E. C. Felton for directors to be voted upon at the annual election on April 24. These are the directors whose terms expire this year.

Richmond, Fredricksburg & Potomac.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $1,709,704, as compared with $2,473,338 in 1926. Selected items from the income statement follow:

Richmond, Fredericksburg & Potomac	1927	1926
Average mileage operated	122	122
Railway Operating Revenues	$11,595,722	$12,801,737
Maintenance of way	1,414,940	1,331,455
Maint'ce of equipment	2,027,984	2,124,644
Transportation	4,143,252	4,276,084
Total Operating Expenses	8,438,157	8,656,356
Operating ratio	72.77	67.62
Net Revenue From Operations	3,157,565	4,145,381
Railway tax accruals	669,451	858,762
Railway operat'g income	2,488,047	3,286,241
Equipment rents, Dr. bal.	486,801	481,525
Joint facility rents, Dr. bal.	125,599	141,760
Net Railway Operating Income	1,875,647	2,662,956
Non-operating income	210,957	262,849
Gross Income	2,086,603	2,925,805
Interest on funded debt	356,345	361,967
Total Deductions From Gross Income	376,849	452,468
Net Income	1,709,754	2,473,338

Virginian.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $5,908,561 as compared with net income in 1926 of $6,717,047. Selected items from the income statement follow:

The Virginian	1927	1926
Average mileage operated	545.16	545.04
Railway Operating Revenues	$22,114,785	$23,878,539
Maintenance of way	2,377,652	3,052,952
Maint'ce of equipment	4,309,586	4,456,406
Transportation	4,424,255	5,196,932
Total Operating Expenses	11,603,491	13,239,669
Operating ratio	52.47	55.45
Net Revenue From Operations	10,511,295	10,638,870
Railway tax accruals	2,102,954	1,689,100
Railway operat'g income	8,403,911	8,948,978
Equipment rents, Cr.	611,890	852,895
Net Railway Operating Income	not shown	
Gross Income	10,008,856	10,840,875
Interest on funded debt	2,767,200	2,767,200
Total Deductions From Gross Income	4,100,294	4,123,828
Net Income	5,908,561	6,717,047

Wabash.—*Annual Report.*—The annual report for 1927 shows net income after interest and other charges of $4,763,610 an compared with net income in 1926 of $8,217,488. Selected items from the income statement follow:

Wabash	1927	1926
Average mileage operated	2,524.20	2,524.20
Railway Operating Revenues	$67,108,154	$71,693,341
Maintenance of way	9,340,820	9,859,555
Maint'ce of equipment	11,880,995	12,457,128
Transportation	25,924,499	26,276,878
Total Operating Expenses	51,379,147	52,465,680
Net Revenue From Operations	15,729,007	19,227,661
Railway tax accruals	2,787,695	3,428,682
Railway operat'g income	12,931,640	15,790,598
Hire of freight cars, Dr. bal.	1,933,814	1,851,695
Joint facility rents, Dr. bal.	1,395,391	1,370,343
Net Railway Operating Income	9,611,677	12,562,083
Non-operating income	1,981,198	1,262,370
Gross Income	11,592,875	13,824,453
Rent for leased roads	364,948	363,258
Interest on funded debt	5,496,348	5,027,594
Total Deductions From Gross Income	6,829,265	5,606,965
Net Income	4,763,610	8,217,488

Average Price of Stocks and of Bonds

	Apr. 17	Last week	Last year
Average price of 20 representative railway stocks	121.94	121.94	110.91
Average price of 20 representative railway bonds	96.80	96.73	94.70

Dividends Declared

Bangor & Aroostook.—Common, $0.87, quarterly; preferred, $1.75, quarterly, both payable July 1 to holders of record May 31.

Valuation Reports

The Interstate Commerce Commission has made public final valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes as of the respective valuation dates as follows:

Wildwood & Delaware Bay Short Line	$ 240,000	1916
Maryland & Pennsylvania	3,088,500	1918
Maryland & Pennsylvania Terminal	500,000	1918
Kentucky & Tennessee	693,948	1918

Officers

Executive

George B. Elliott, vice-president and general counsel of the Atlantic Coast Line, with headquarters at Wilmington, N. C., has been elected president, with the same headquarters, succeeding J. R. Kenly, deceased.

P. R. Albright, vice-president and general manager of the Atlantic Coast Line, with headquarters at Wilmington, N. C., has been appointed vice-president in charge of operation, with headquarters in the same city.

M. C. Markham, assistant to the vice-president in charge of traffic of the Missouri Pacific, with headquarters at St. Louis, Mo., has retired under the pension rules of the company at the age of 76 years. Mr. Markham had been assistant to the vice-president since January, 1906.

Financial, Legal and Accounting

Harry R. Stocker, law instructor at the City College of Law, St. Louis, Mo., and a member of the law firm of Baker, Britton, Watkins & Stocker, has been appointed assistant general attorney of the Missouri Pacific, with headquarters at St. Louis.

John M. Wagner, purchasing agent and assistant treasurer of the Copper Range, with headquarters at Houghton, Mich., has been given the title of assistant treasurer, with headquarters at the same point, and will now devote his entire time to the duties of his new office.

Frank H. Ratcliffe, treasurer of the Boston & Albany, who recently resigned from active service, was born on May 26, 1845, at Faversham, Kent, England. He was educated at Boston, Mass., and at the age of 19 entered railway service as a clerk. He subsequently served as chief clerk and assistant treasurer for the Boston & Albany. Mr. Ratcliffe had been treasurer for the Boston & Albany since 1899 and before that time served with its predecessor, the Boston & Worcester. **George B. Foster** succeeds Mr. Ratcliffe as treasurer.

Operating

J. N. Brand. assistant general manager of the Atlantic Coast Line, with headquarters at Wilmington, N. C., has been appointed general manager, with headquarters at the same point.

E. L. Gamble, manager of the Tidewater Southern, with headquarters at Stockton, Calif., died at his home in that city on March 26.

T. F. Dixon, assistant superintendent on the Great Northern at Whitefish, Mont., has been appointed superintendent of the Klamath division between Bend Ore and Klamath Falls, with headquarters at Klamath Falls, effective May

C. E. Connally, connected with the office of the auditor of traffic accounts of the Pere Marquette, has been promoted to car accountant, with headquarters at Detroit, Mich. Mr. Connally succeeds **E. L. Mitten,** who has resigned to become associated with Mitten Management, Inc., Philadelphia, Pa.

L. O. Murdock, superintendent of the Alliance division of the Chicago, Burlington & Quincy, with headquarters at Alliance, Neb., has been promoted to assistant to the vice-president, in charge of labor matters, with headquarters at Chicago. Mr. Murdock succeeds **D. H. Bremerman,** who has resigned, effective May 1, to become a member of the newly formed Southwestern Train Service Board, with headquarters at St. Louis, Mo.

L. B. Jones, master mechanic on the Eastern region of the Pennsylvania at Harrisburg, Pa., has been transferred to the Columbus division with headquarters at Columbus, O., succeeding **B. M. Swope,** promoted. **P. M. Chessman,** master mechanic assigned to special duty in the office of the general superintendent of motive power of the Western region at Chicago, has been transferred to the Monongahela division, with headquarters at Uniontown, Pa.

Berkeley Ward, Jr., assistant trainmaster on the Atlantic division of the Pennsylvania, has been appointed assistant trainmaster in the office of the general superintendent of transportation at Philadelphia, Pa. **C. J. Ribblet,** acting assistant trainmaster of the Middle division with headquarters at Huntingdon, Pa., has been appointed assistant trainmaster on the Williamsport division. **J. W. Engle,** assistant trainmaster, Williamsport division, has been transferred in the same capacity to the Middle division, with headquarters at Huntingdon, succeeding **Hiram DeHuff,** transferred.

W. R. Petty, who has been promoted to superintendent of the St. Louis Terminal division of the Missouri Pacific, with headquarters at St. Louis, Mo., has completed more than 27 years of service with that railroad. He was born on June 9, 1880, at Sumner, Ill., and graduated from the Sumner High School in April, 1896. Mr. Petty entered railroad service on September 3, 1901, as a switchman on the Missouri Pacific. In August, 1905, he was advanced to assistant yardmaster and in September, 1908, he was promoted to general yardmaster. Mr. Petty occupied the position of general yardmaster for the following 18 years and on March 16, 1926, he was promoted to assistant superintendent at St. Louis. His promotion to superintendent at St. Louis became effective on April 1.

H. C. Murphy, who has been connected with the staff of the general manager of the Chicago, Burlington & Quincy lines east of the Missouri river at Chicago, has been promoted to superintendent of the Centerville division, with headquarters at Centerville, Iowa. **W. E. Haist,** transportation assistant on the lines west of the Missouri river, with headquarters at Omaha, Neb., has been assigned to the staff of the general manager of the lines east, with headquarters at Chicago, succeeding Mr. Murphy. **F. B. Leonard,** trainmaster at Burlington, Iowa, has been transferred to the Ottumwa division, with headquarters at Ottumwa, Iowa. **F. E. Sperry** has been appointed trainmaster on the Galesburg division, with headquarters at Galesburg, Ill., replacing **L. F. Parks,** who has resigned to engage in other business.

C. A. Clements, who has been promoted to assistant general manager of the Missouri Pacific in charge of yard operations, with headquarters at St. Louis, Mo., has been associated with the operating department of that railroad for nearly 21 years. He was born on June 13, 1879, at Brightwood, Ind., and entered railway service in October, 1894, as a call boy on the Illinois Central at

C. A. Clements

Centralia, Ill. Later he served as ticket clerk and as yard clerk at Centralia, being advanced successively, beginning with January, 1898, to brakeman, switchman, conductor, general yardmaster and trainmaster. Mr. Clements was appointed general yardmaster on the Missouri Pacific at Little Rock, Ark., in September, 1907, and in September of the following year he was advanced to trainmaster at the same point. He also served as trainmaster at De Soto, Mo., and Popular Bluff and at Pittsburg, Kan. In October, 1918, he was promoted to superintendent of terminals at Kansas City, Mo., where he remained until transferred to St. Louis in October, 1925. Mr. Clement's promotion to assistant general manager became effective on April 1.

William L. Oldroyd, who has been appointed assistant to the vice-president of the Boston & Albany, with headquarters at Boston, Mass., was born on February 17, 1886, at Springfield, Mass. He entered railway service on April 14, 1902, as an office boy in the car service de-

William L. Oldroyd

partment of the Boston & Albany. He was promoted to the position of foreman of the car service department in November, 1917. In March, 1919, he was transferred to Boston and given special duties in the office of the vice-president and was designated as statistician in January, 1920, serving in this capacity until his recent appointment as assistant to the vice-president.

Traffic

H P. Halley has been appointed traffic manager and auditor of the Rutland, Toluca & Northern, with headquarters at Toluca, Ill.

M. F. Edbrooke has been appointed assistant general freight agent of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago.

F. L. Ayres, assistant freight claim agent of the Central of New Jersey, with headquarters at New York, has been appointed industrial agent, with the same headquarters.

Charles C. McCarthy, general agent in the freight department of the Missouri Pacific at Pittsburgh, Pa., retired from active service under the pension rules of the company on April 1.

J. P. Williams, division freight and passenger agent on the Chicago & North Western at Chicago, has been promoted to assistant general freight agent, with headquarters at the same point.

B. F. Morris, commerce agent of the Louisville & Nashville, with headquarters at Louisville, Ky., has been appointed assistant to the freight traffic manager, with headquarters in the same city.

J. R. Shannon, general passenger agent of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., has been appointed general freight and passenger agent with head-

quarters at the same point, and the position of general freight agent, held by **R. N. Golden,** who resigned to accept service with another railroad has been abolished. **W. K. Adams,** division passenger agent at Minneapolis, has been appointed assistant general passenger agent, with headquarters in the same city.

Daniel J. McGanney, assistant general freight agent of the Pacific lines of the Southern Pacific, with headquarters at San Francisco, Cal., has been promoted to assistant to the freight traffic manager, with headquarters at the same point. **A. I. Hoskins,** chief of the manifest bureau at San Francisco, has been promoted to assistant general freight agent, succeeding Mr. McGanney. Mr. McGanney entered railway service in June, 1911, as an office boy in the office

Daniel J. McGanney

of the auditor at San Francisco, later becoming file clerk in that office. During the period from December, 1912, to May, 1926, he served successively as assistant file clerk in the office of the president, assistant head clerk of the consolidated file bureau in the auditor's office, head file clerk in the president's office, rate clerk in the general freight department, personal clerk to the assistant freight traffic managers, chief clerk of the train service and manifest bureau of the freight traffic department and personal clerk to the freight traffic manager. On June 1, 1926, Mr. McGanney was promoted to statistician in the freight traffic department, where he remained until July 1 of the same year when he was again promoted to assistant general freight agent. His advancement to assistant to the freight traffic manager became effective on April 2.

J. E. Senne, assistant general freight agent of the Midland Valley and the Kansas, Oklahoma & Gulf, with headquarters at Muskogee, Okla., has been appointed acting traffic manager, with headquarters in the same city, succeeding **C. S. Edmonds** who has resigned to become traffic manager of the Oklahoma Railway, with headquarters at Oklahoma City, Okla.

Engineering, Maintenance of Way and Signaling

W. A. Swonger, assistant supervisor of telegraph and signals of the Baltimore division of the Pennsylvania, with headquarters at Baltimore, Md., has been appointed supervisor of telegraph and signals of the Cumberland Valley division.

Mechanical

W. T. Capps has been appointed stoker supervisor of the Baltimore & Ohio, with headquarters at Baltimore, Md. Mr. Capps was formerly mechanical expert of the Locomotive Stoker Company.

D. C. Elliott, rules instructor on the Belleville division of the Canadian National, has been promoted to master mechanic of the Hornepayne division, with headquarters at Hornepayne, Ont., succeeding **J. Hawkins** who has been transferred to the Belleville division, with headquarters at Belleville, Ont., Mr. Hawkins replaces **N. M. Kerr** who has been transferred to the St. Lawrence division, with headquarters at Montreal, Que.

Purchases and Supplies

C. C. McMillen, storekeeper of the Walbridge Road car department of the Ohio Central lines of the New York Central at Toledo, Ohio, has been promoted to assistant division storekeeper at Bucyrus, Ohio.

W. N. Strong, storekeeper on the Chesapeake & Ohio, with headquarters at Cane Fork, W Va., has been transferred in the same capacity to Ronceverte, W. Va., succeeding **T. C. Sydnor,** resigned. **C. S. Wetherholt** has been appointed storekeeper at Cane Fork, succeeding Mr. Strong.

John Ball, assistant purchasing agent of the Chicago & North Western, with headquarters at Chicago, has been promoted to assistant general purchasing agent of that railroad and the Chicago, St. Paul, Minneapolis & Omaha, with headquarters as before at Chicago. **J. E. McMahon,** general storekeeper of the Omaha, with headquarters at St. Paul, Minn., has been promoted to assistant purchasing agent and general storekeeper of that railroad, with headquarters in the same city.

C. W. Craig, assistant division storekeeper on the Union Pacific at Green River, Wyo., has been promoted to division storekeeper of the Central division of that railroad and the St. Joseph & Grand Island, with headquarters at St. Joseph, Mo., succeeding **H. Weindel,** who has been appointed stores inspector of the Union Pacific, with headquarters at Omaha, Neb. **E. F. McFadden,** storekeeper on the Union Pacific at Green River, has been promoted to assistant division storekeeper at Green River to replace Mr. Craig.

Benjamin D. Noetzel, assistant purchasing agent of the Copper Range, has been promoted to purchasing agent, with headquarters as before at Houghton, Mich. He succeeds **John M. Wagner** who has been transferred to the executive department of the Copper Range. Mr. Noetzel was born at Forestville, Wis., on February 28, 1882, and entered railway service on May 1, 1916, as chief clerk in the purchasing department of the Copper Range. Previous to that time he had been chief clerk of the Trimountain Mine branch of the Copper Range Company, entering the service of that organization on January 1, 1904. After 10 years as chief clerk in the purchasing department Mr. Noetzel was promoted to assistant purchasing agent on August 1, 1926. His promotion to purchasing agent became effective on March 1.

Obituary

A. L. Bromall, manager of the renewal parts engineering department of the Westinghouse Electric & Manufacturing Company, died on April 10, at his home, Wilkinsburg, Pa., at the age of 44.

Frederick G. Prest, who retired as director of purchases of the Northern Pacific in 1924, died at his home at St. Paul, Minn., on March 30 after an illness of less than a day.

Philip J. Doherty, chief attorney of the division of safety of the Interstate Commerce Commission, died on April 13, after a month's illness. Mr. Doherty was 72 years of age.

Joseph H. McConnell, superintendent of motive power and machinery of the Union Pacific from 1891 to 1901, died at Santa Barbara, Cal., on April 4, while in his eighty-fifth year. Mr. McConnell was born at Elmira, N. Y., on September 29, 1843, and entered railway service in 1861 as a machinist apprentice on the Great Western (now the Wabash) at Springfield, Ill. For the next 25 years he served in that capacity, as a machinist on the Chicago, Burlington & Quincy at Galesburg, Ill., and on the Chicago & Alton at Jacksonville, Ill., as general foreman of the Omaha (Neb.) shops of the Union Pacific, and as master mechanic of the Nebraska division of the Union Pacific. In 1886 Mr. McConnell left railroad service to engage in the mercantile business at Omaha, returning to the mechanical department of the Union Pacific two years later. He was promoted to superintendent of motive power and machinery, with headquarters at Omaha in February, 1891, where he remained until July, 1901, when he was appointed manager of the Pittsburgh (Pa.) works of the American Locomotive Company. Mr. McConnell left the service of that company on October 1, 1903, locating in Santa Barbara in 1921.